

Commission of Inquiry into the Decline of
Sockeye Salmon in the Fraser River



Commission d'enquête sur le déclin des
populations de saumon rouge du fleuve Fraser

Public Hearings

Audience publique

Commissioner

L'Honorable juge /
The Honourable Justice
Bruce Cohen

Commissaire

Held at:

Room 801
Federal Courthouse
701 West Georgia Street
Vancouver, B.C.

Wednesday, August 31, 2011

Tenue à :

Salle 801
Cour fédérale
701, rue West Georgia
Vancouver (C.-B.)

le mercredi 31 août 2011



Errata for the Transcript of Hearings on August 31, 2011

Page	Line	Error	Correction
85	4	6590 percent of the time	60 percent of time
21	42	veterinarian	veterinary
22 to 23	40 to 4	No indication of a question being asked by Mr. Martland	Page 22, line 40: Q
53	47	preliminary chain reaction	polymerase chain reaction
54	11-12	viral virus	virovirus
65	16	in stead	instead
87	3	say	saw

APPEARANCES / COMPARUTIONS

Brock Martland Kathy L. Grant	Associate Commission Counsel Junior Commission Counsel
Mitchell Taylor, Q.C. Jonah Spiegelman	Government of Canada ("CAN")
Clifton Prowse, Q.C. Tara Callan	Province of British Columbia ("BCPROV")
No appearance	Pacific Salmon Commission ("PSC")
No appearance	B.C. Public Service Alliance of Canada Union of Environment Workers B.C. ("BCPSAC")
No appearance	Rio Tinto Alcan Inc. ("RTAI")
Alan Blair Shane Hopkins-Utter	B.C. Salmon Farmers Association ("BCSFA")
No appearance	Seafood Producers Association of B.C. ("SPABC")
Gregory McDade, Q.C.	Aquaculture Coalition: Alexandra Morton; Raincoast Research Society; Pacific Coast Wild Salmon Society ("AQUA")
Tim Leadem, Q.C. Judah Harrison	Conservation Coalition: Coastal Alliance for Aquaculture Reform Fraser Riverkeeper Society; Georgia Strait Alliance; Raincoast Conservation Foundation; Watershed Watch Salmon Society; Mr. Otto Langer; David Suzuki Foundation ("CONSERV")
Katrina Pacey	Area D Salmon Gillnet Association; Area B Harvest Committee (Seine) ("GILLFSC")

APPEARANCES / COMPARUTIONS, cont'd.

No appearance	Southern Area E Gillnetters Assn. B.C. Fisheries Survival Coalition ("SGAHC")
No appearance	West Coast Trollers Area G Association; United Fishermen and Allied Workers' Union ("TWCTUFA")
No appearance	B.C. Wildlife Federation; B.C. Federation of Drift Fishers ("WFFDF")
No appearance	Maa-nulth Treaty Society; Tsawwassen First Nation; Musqueam First Nation ("MTM")
No appearance	Western Central Coast Salish First Nations: Cowichan Tribes and Chemainus First Nation Hwlitsum First Nation and Penelakut Tribe Te'mexw Treaty Association ("WCCSFN")
Brenda Gaertner Leah Pence	First Nations Coalition: First Nations Fisheries Council; Aboriginal Caucus of the Fraser River; Aboriginal Fisheries Secretariat; Fraser Valley Aboriginal Fisheries Society; Northern Shuswap Tribal Council; Chehalis Indian Band; Secwepemc Fisheries Commission of the Shuswap Nation Tribal Council; Upper Fraser Fisheries Conservation Alliance; Other Douglas Treaty First Nations who applied together (the Snuneymuxw, Tsartlip and Tsawout); Adams Lake Indian Band; Carrier Sekani Tribal Council; Council of Haida Nation ("FNC")
No appearance	Métis Nation British Columbia ("MNBC")

APPEARANCES / COMPARUTIONS, cont'd.

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No appearance	Métis Nation British Columbia ("MNBC")

APPEARANCES / COMPARUTIONS, cont'd.

No appearance	Sto:lo Tribal Council Cheam Indian Band ("STCCIB")
Steven Kelliher	Laich-kwil-tach Treaty Society Chief Harold Sewid, Aboriginal Aquaculture Association ("LJHAH")
Krista Robertson	Musgamagw Tsawataineuk Tribal Council ("MTTC")
No appearance	Heiltsuk Tribal Council ("HTC")

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1 Vancouver, B.C. /Vancouver
2 (C.-B.)
3 August 31, 2011/le 31 août
4 2011
5

6 THE REGISTRAR: The hearing is now resumed.

7 MR. MARTLAND: Mr. Commissioner, we are convening early
8 today to provide an additional 15 minutes for Ms.
9 Gaertner, given the request she made yesterday.
10 So we have the two returning panel members from
11 regulatory panel number 1. I'll also advise that
12 Ms. Gaertner very helpfully has organized a series
13 of exhibits, proposed exhibits that she's looking
14 to enter via this panel. She's, I understand,
15 reviewed that with other counsel here. I don't
16 understand there to be any objection so that may
17 happen fairly quickly in the absence of objection,
18 given agreement by counsel in the room. Thank
19 you.

20 THE COMMISSIONER: Thank you, Mr. Martland. Ms.
21 Gaertner?
22

23 TREVOR SWERDFAGER, recalled.
24

25 ANDREW THOMSON, recalled.
26

27 MS. GAERTNER: Thank you, Mr. Commissioner. For the
28 record, Brenda Gaertner, and with me, Leah Pence,
29 for the First Nations Fish Coalition. I have
30 numerous documents that I've provided and I'm
31 going to run through very quickly. The first two
32 are the First Nations Summit Resolutions that are
33 the companion resolutions to the Union of B.C.
34 Indian Chiefs Resolutions of 2009, and I proposed
35 that they be marked Exhibit 1647 and 1648.

36 THE REGISTRAR: So marked.
37

38 EXHIBIT 1647: First Nations Summit,
39 Resolution #0909.06, B.C. First Nations'
40 Statement of Jurisdiction on Aquaculture
41

42 EXHIBIT 1648: First Nations Summit,
43 Resolution #0909.07, B.C. First Nations'
44 Statement of Solidarity on Aquaculture
45

46 MS. GAERTNER: The next two documents at First Nations
47 Coalitions Tabs 3 and 4. These are DFO meeting

1 notes that were held on June 16th, 2009 and June
2 17th, 2009. These are meetings that were hosted
3 by the First Nations Fisheries Council at which
4 First Nations and DFO, including Mr. Swerdfager
5 and Mr. Thomson were present. I propose that they
6 be marked 1649 and 1650.

7 THE REGISTRAR: So marked.

8
9 EXHIBIT 1649: Meeting Notes, B.C. First
10 Nations/DFO Aquaculture Management, June 16,
11 2009

12
13 EXHIBIT 1650: Meeting Notes, B.C. First
14 Nations/DFO Aquaculture Management, June 17,
15 2009

16
17 CROSS-EXAMINATION BY MS. GAERTNER, continuing:

18
19 Q Mr. Thomson?

20 MR. THOMSON: I'm sorry, those two meetings were not
21 hosted by the First Nations Fisheries Council.

22 Q I'm sorry, who were they hosted by?

23 MR. THOMSON: DFO.

24 MS. GAERTNER: All right. Thank you for that
25 clarification. Moving next to Tab 10, which is
26 the First Nations Fisheries Council Analysis of
27 the Strategic Questions posed by Department of
28 Fisheries and Oceans for the Development of the
29 Regulatory Framework, dated January 2010, and I
30 propose that that be marked 1651.

31 THE REGISTRAR: So marked.

32
33 EXHIBIT 1651: Analysis of "Strategic
34 Questions" posed by Fisheries and Oceans
35 Canada for the Development of a Regulatory
36 Framework for B.C. Aquaculture, January 2010

37
38 MS. GAERTNER: Moving next to First Nations Tab 11,
39 which is a report done for the First Nations
40 Fisheries Council by Diane Urban called
41 "Aquaculture Policy and Past Inquiry
42 Recommendations on B.C. First Nations Title and
43 Rights, Report to First Nations Fisheries
44 Council," Exhibit 1652.

45 THE REGISTRAR: So marked.

46
47 EXHIBIT 1652: Aquaculture Policy and Past

1 Inquiry Recommendations on B.C. First Nations
2 Title and Rights, Report to First Nations
3 Fisheries Council from Diane Urban
4

5 MS. GAERTNER: Moving next to Tab 21 of the First
6 Nations Coalition, the briefing notes from the
7 First Nations Fisheries Council that was provided
8 to the B.C. First Nations communities, providing
9 comments on the draft B.C. Aquaculture
10 Regulations, dated July 12th, 2010. I propose
11 that it be marked 1653.

12 THE REGISTRAR: So marked.

13
14 EXHIBIT 1653: Briefing Note, July 12, 2010,
15 Comments on Draft B.C. Aquaculture
16 Regulations
17

18 MS. GAERTNER: A letter from Sechelt Indian Band dated
19 August 24th, 2010, regarding the proposed
20 regulations. That letter is found on the First
21 Nations Fisheries Council's public website.

22 Q I'll just pause for a moment and ask the witnesses
23 this question. This is a letter that was done in
24 August 2010. You'll agree it's an example of a
25 number of letters that the Department received
26 around that time from individual First Nations as
27 distinct from the letters that were received from
28 either the Summit, the Union, or the First Nations
29 Coalition; is that correct? It's an example of a
30 type of letter that was received by the
31 Department?

32 MR. SWERDFAGER: Yes, I think that it is exemplary of I
33 don't know exactly how many, but I'd say we got
34 quite a few of a very similar nature.

35 MS. GAERTNER: Thank you. And I propose that that be
36 marked 1654.

37 THE REGISTRAR: So marked.

38
39 EXHIBIT 1654: Response to Proposed
40 Regulations regarding B.C. Aquaculture,
41 August 24, 2010
42

43 MS. GAERTNER: Moving to Tab 29, which is an email from
44 the First Nations Fisheries Council to Deputy
45 Minister Claire Dansereau dated August 27th, 2010,
46 providing concerns related to the Pacific
47 Aquaculture Regulations and the need for improved

1 collaborations, and I note that those emails were
2 cc'd to both Mr. Thomson and Mr. Swerdfager. Can
3 we have that marked as 1655?

4 THE REGISTRAR: So marked.

5
6

7 EXHIBIT 1655: Email dated August 27, 2010
8 from Brenda McCorquodale to Claire Dansereau,
9 re Concerns related to Pacific Aquaculture
10 and the need for improved collaboration with
11 B.C. First Nations Greetings Deputy
12

13 MS. GAERTNER: And the next is a letter from Chief
14 Claxton of the First Nations Fisheries Council to
15 Trevor Swerdfager, dated August 27th, 2010,
16 regarding the draft Pacific Aquaculture
17 Regulations and the 60-day consultation period,
18 and I note that that's a 10-page letter. May I
19 have that marked as 1656?

20 THE REGISTRAR: So marked.

21

22 EXHIBIT 1656: First Nations Fisheries
23 Council letter to Trevor Swerdfager re Draft
24 Pacific Aquaculture Regulations and B.C.
25 First Nations engagement in the development
26 of an Aquaculture Management Framework for
27 the Pacific
28

29 MS. GAERTNER: First Nations Fisheries Council,
30 Perspectives on a Management Framework for
31 Aquaculture in British Columbia, dated April 20,
32 2011, Tab 45 of our documents, I propose that that
33 be marked 1657.

34 THE REGISTRAR: That's Tab 45? You skipped 42.

35 MS. GAERTNER: We're not doing 42.

36 THE REGISTRAR: You're not doing 42? Thank you.

37 MS. GAERTNER: Tab 45, sorry.

38 THE REGISTRAR: That's 1657.

39 MS. GAERTNER: Tab 42 is already an exhibit.

40

41 EXHIBIT 1657: First Nations Perspectives on
42 a Management Framework for Aquaculture in
43 British Columbia
44

45 MS. GAERTNER: And finally, Commission Tab number 7,
46 which is the B.C. Aquaculture Licensing Approach,
47 something called Special Notes.

1 Q I'm wondering if one of you could advise us what
2 that document is, when it was produced and by
3 whom?

4 MR. THOMSON: Can the document be scrolled down?

5 MR. SWERDFAGER: Can you just scroll down a little bit?

6 MR. THOMSON: Can you just scroll down? Is it that?

7 Q It's my understanding that this accompanied the
8 draft suite of policies. Does that help either of
9 you?

10 MR. SWERDFAGER: Not me.

11 MR. THOMSON: No. There are certainly aspects of it
12 that are similar to documents I've seen, but I
13 couldn't say for certain that I've seen this
14 document.

15 MS. GAERTNER: Could we have that marked for
16 identification at this point in time?

17 MR. MARTLAND: Indeed, it is referred to in our Policy
18 and Practice Report, it's referenced there. I
19 don't see an issue with it. In the absence of
20 objection, I appreciate it's a little artificial,
21 but that nonetheless, it could be marked as an
22 exhibit proper, unless there is an objection?

23 MR. TAYLOR: I don't have an objection, it's just going
24 in as a bare document. The witnesses don't know
25 what it is, but it's not a particularly surprising
26 content.

27 MS. GAERTNER: It's a document created by the
28 Department of Fisheries and Oceans.

29 THE REGISTRAR: That will be marked as 1658.

30 MS. GAERTNER: Thank you.

31

32 EXHIBIT 1658: B.C. Aquaculture Licensing
33 Approach, Special Notes
34

35 MS. GAERTNER:

36 Q I'll turn now to the substantive questions that
37 I'm going to try to get with you in this very
38 short period of time.

39 MS. GAERTNER: But before I do, I must note on the
40 record, Commissioner, that Grand Chief Stewart
41 Phillip is here today, and also Jordan Point, who
42 is the Executive Director for the First Nations
43 Fisheries Council.

44 Q Would you agree with me that the work of the First
45 Nations Fisheries Council, first, in obtaining the
46 mandates from both the UBCIC and the Summit to
47 meet with DFO officials on strategic issues and

1 concerns regarding the transfer of primary
2 regulatory authority of the Department of
3 Fisheries and Oceans, and in providing information
4 and hosting meetings with the First Nations around
5 the province and gathering, theoretically, the
6 concerns have been useful for the Department of
7 Fisheries and Oceans?
8 MR. THOMSON: Yes.
9 Q And would you agree that this work needs to
10 continue?
11 MR. THOMSON: I agree that we need to continue working
12 with the First Nations Fisheries Council on
13 aquaculture issues, yes.
14 Q And you'll agree with me that as early as June
15 16th and 17th, 2009, at meetings that both of you
16 attended, that DFO was put on notice that First
17 Nations had concerns regarding such things as the
18 protection of wild fish stocks as it relates to
19 the siting of farms?
20 MR. THOMSON: Yes.
21 Q That First Nations needs to be consulted about all
22 decisions regarding fish farms in their
23 territories?
24 MR. THOMSON: Yes.
25 Q They were concerned with how enforcement of fish
26 farms would be carried out?
27 MR. THOMSON: Yes.
28 Q They raised concerns as to whether farms can or
29 will be moved upland or inland and contained?
30 MR. THOMSON: I honestly don't remember that particular
31 point.
32 Q If that was in your minutes that I've tabled,
33 would you agree with that?
34 MR. THOMSON: Okay. I would agree if it's in the
35 minutes, yes.
36 Q And that First Nations believe that they've been
37 involved too late in the process?
38 MR. THOMSON: Again, if it's in the minutes, I would
39 agree with it. I don't remember that particular
40 concern at that particular meeting.
41 Q That they raised concerns about how First Nations
42 roles would be dealt with in the management of
43 fish farms?
44 MR. THOMSON: Yes.
45 Q That they should have been consulted before first
46 fish farms were ever entered into the water?
47 MR. THOMSON: I've certainly heard that concern in many

1 meetings.

2 Q They asked questions of how you'd be responsive to
3 new science as you looked at the siting of these
4 farms?

5 MR. THOMSON: Yes.

6 Q And they asked questions on how the Pacific
7 Aquaculture Regulations would work with the Wild
8 Salmon Policy?

9 MR. THOMSON: Yes.

10 Q And can you confirm for the Commissioner that as
11 early as 2009, First Nations advised DFO that they
12 saw the transfer of regulatory jurisdiction to
13 Canada as an opportunity, both legally and
14 otherwise for their substantive concerns regarding
15 potential impacts and infringements to their s. 35
16 rights to be substantially considered and
17 addressed by the Crown?

18 MR. THOMSON: Do you want to take it?

19 MR. SWERDFAGER: I think that certainly, I would agree
20 that some First Nations made that point to us.
21 Others did not. And some of the materials and the
22 opinions that were conveyed to us dealt with those
23 topics, others focussed more specifically on
24 aquaculture.

25 MS. GAERTNER: And if I could turn now to Exhibit 1240,
26 and I want to turn to page 8 of that exhibit?

27 Q That's the listing, that's the report that the
28 First Nations Fisheries Council did summarizing
29 the meetings that were held in 2010. You're
30 familiar with that report. And I want to go to
31 page 8 of that, where there's a listing of
32 concerns and for the purposes of the
33 Commissioner's terms of reference, ask you what
34 specific and independent steps have you taken on
35 behalf of the Department of Fisheries and Oceans
36 to substantially consider and address items number
37 2 and number 6? Number 2 is the need to conserve
38 wild stocks and their habitats vis-à-vis the
39 proposed Federal Aquaculture Regulations, and
40 number 6 is the need to base management decisions
41 on science and comprehensive environmental
42 assessment. What specific and independent steps
43 have you taken since these concerns have been
44 raised with you?

45 MR. SWERDFAGER: If you go back up to number 2, please?
46 So conservation and restoration of wild stocks and
47 their habitats, and the kinds of things that are

1 listed there in the description, I think it would
2 take us a very, very long time to identify all of
3 the things that DFO has done and is doing with
4 respect to that item.

5 Certainly, in terms, if you're posing the
6 question specifically related to the Pacific
7 Aquaculture Regulations, we have structured them
8 in a way that we feel allows us to address all of
9 those sub-bullets in the Description column,
10 there. And when you look at some of the far-field
11 indicators, et cetera, that are in the sub-themes,
12 I'm not sure just what that means, but I think the
13 regulation is very much structured that way.

14 If you're looking for an itemization of all
15 of the activities that the Department of Fisheries
16 and Oceans does to "conserve and restore wild
17 stocks," I think that would take us a very long
18 time, and I think a lot of evidence has probably
19 been introduced on that already.

20 The sixth point, which I recall is -- if,
21 again, you could scroll down, Mr. Lunn -- with
22 respect to basing management on science and
23 comprehensive environmental assessment tools and
24 broadening the scope as I indicated in there,
25 certainly, the decision making processes that
26 we've got in place in design of the regulation and
27 in terms of its administration, in our view, at
28 least, will quite comprehensively cover those
29 points.

30 Q To your knowledge, has there been a comprehensive
31 study completed, or initiated since 2009 to
32 address the concerns First Nations have raised
33 with the Department of Fisheries and Oceans
34 regarding the size, location and number of the
35 existing finfish farms along the migratory route
36 of the Fraser River sockeye salmon, including
37 cumulative impacts?

38 MR. SWERDFAGER: A separate study? No, we haven't
39 conducted a separate study described as you have
40 just now.

41 Q Would you agree that a comprehensive study aimed
42 to do that which had terms of reference agreed
43 upon by the First Nations and the Department of
44 Fisheries, and ideally agreed to with the support
45 of other stakeholders, would be a useful step in
46 addressing this concern?

47 MR. SWERDFAGER: I think that the idea of conducting

1 some kind of overall study may have some merit.
2 It's not something I would want us to agree to on
3 the spot, so to speak, because it depends on what
4 would be involved in it. I do think that a large
5 part of our integrated managements plans will
6 address many of those issues. That's why they're
7 being structured and designed in the way they are.
8 I think, at this point, the need is most urgent to
9 get on with managing and guiding the sector
10 overall as opposed to studying more. And I do
11 think, as well, we will have the benefit of the
12 outcome of this inquiry to guide us in much of our
13 decision making and activity so that a further
14 comprehensive study of the nature you're
15 describing may not be necessary.

16 Q Or if based on the concomitant of all of the
17 information that the Commissioner has that such a
18 study would be useful, it would be welcomed by the
19 Department, including you?

20 MR. SWERDFAGER: I think that if we got to the point
21 where we had the work of the Inquiry before us,
22 and so on, and we felt that another study of the
23 nature you're describing is necessary and
24 beneficial, certainly, the Department would look
25 at it.

26 Q I have only three minutes left, and I have to turn
27 to the decision to grandfather these licenses. I
28 would like to turn to Exhibit 1244 and 1238.
29 These are two letters, one from the First Nations
30 Summit, and the other from the Leadership Council.
31 They're dated in July. You're familiar with these
32 letters? It's two letters to the Minister Shea.

33 MR. THOMSON: We're both trying to follow the document
34 fairly quickly, there.

35 Q Shea. Yes.

36 MR. THOMSON: Minister Shea. And I'm familiar with
37 both of those letters.

38 Q And you'll agree with me that those letters raised
39 very strong concerns that DFO's plans to rollover
40 the existing licenses without adequate
41 consultation would not meet your legal
42 obligations?

43 MR. THOMSON: I would need an opportunity to read them
44 all in detail again. My understanding at this
45 point in the process is that the letters, for the
46 most part, were focussed on the consultation
47 process around the regulation, itself, as opposed

1 to any site specific decisions. Now, perhaps
2 further down in the text, but it does maybe talk
3 about site specific issues, but if you look at the
4 one, for example, that's on the left now --

5 Q Could I just take you to page 2 of Exhibit 1238,
6 at the top of the page --

7 MR. THOMSON: Yeah.

8 Q -- where it says:

9

10 We also understand that DFO plans to rollover
11 existing aquaculture licenses without any
12 consultation with First Nations. These
13 licenses were issued pursuant to a regulatory
14 regime which the courts have determined is
15 unconstitutional. A jurisdiction rollover
16 without consultation --

17

18 MR. THOMSON: Yeah.

19

20 Q -- accommodation of the infringement caused
21 by these licenses would be unconstitutional.

22

23 MR. THOMSON: Yeah, so I see that now that you've
24 pointed it out and obviously, yes, it does raise
25 that --

26

26 Q Could you tell me who made the --

27

27 MR. THOMSON: -- the main focus was, of course, the
28 regulations, and that's the timeframe that we were
29 in at that point, if you recall?

30

30 Q Could you tell me who in DFO made the decision to
31 approach these licenses by way of grandfathering
32 or rollover?

33

33 MR. THOMSON: I think that the decision in the
34 Department was to issue licenses to people who
35 held them already.

36

36 Q Who made that decision?

37

37 MR. THOMSON: And the approach was taken not so much to
38 just simply grandfather and roll them over.

39

39 Q I'm sorry, I'm asking the question who made the
40 decision?

41

41 MR. THOMSON: Yeah. I think the Department's decision
42 on these issues would have been made by our Deputy
43 Minister, with advice from people within the
44 Department.

45

45 Q And were there briefing notes that were made?

46

46 MR. THOMSON: I hadn't quite finished my previous
47 answer, sorry.

1 Q Were there briefing notes made to the Deputy
2 Minister on this?

3 MR. THOMSON: I wonder if maybe I could just finish, if
4 I may, the previous one? When we had our Deputy
5 Minister briefed up fully with respect to the
6 decision to issue licenses, I would have to go
7 back and check to see where and when in that
8 process we may have briefed our Minister, as well,
9 because the licenses, of course, are issued on her
10 behalf, so to speak. And so I wouldn't want to
11 leave you with the impression that we left our
12 Minister out of the process, so to speak, but I
13 can't say to you she was briefed specifically on
14 that issue at that time, so to speak.

15 MS. GAERTNER: Mr. Commissioner, none of the documents
16 that the Commission counsel put before you or the
17 Crown contained any of this history and I'm asking
18 that these briefing notes and the history
19 associated with this decision be made available to
20 you for your review and be presented.

21 MR. MARTLAND: And with respect to that request,
22 certainly, we'll follow up with Ms. Gaertner, with
23 Canada, and we'll address the request that's been
24 made.

25 MS. GAERTNER: I understand I've used up my time this
26 morning, Mr. Commissioner. I will be continuing
27 with these witnesses to see if we can get the full
28 story of all these issues as the days go on.
29 Thank you, gentleman.

30 MR. MARTLAND: Mr. Commissioner, that was productive in
31 terms of leading exhibits and evidence, but also
32 in terms of inspiring counsel for Canada to have
33 some questions on re-examination, I understand.
34 I'm hoping that will be very quick, as well.

35 MR. TAYLOR: I'll be quick. Three interrelated
36 questions, all related to the documents that Ms.
37 Gaertner put in just now as exhibits, which I
38 appreciate flash by quite quickly, but I think you
39 gentlemen are familiar with the drift.
40

41 CROSS-EXAMINATION BY MR. TAYLOR, continuing:
42

43 Q My three interrelated questions, picking up on the
44 correspondence where First Nations or First
45 Nations organizations are raising concerns or
46 seeking more consultation about the change of
47 regime from the Province to the Federal Government

1 and the regulations or regulatory process being
2 put in place. Was there follow-up discussion or
3 correspondence from DFO to the correspondence
4 she's just put in? Is that discussion or
5 correspondence ongoing, and is some of anything
6 you might answer part of what you were speaking
7 about yesterday?

8 MR. SWERDFAGER: The correspondence was replied to, is
9 the answer to the first one. Some of the dialogue
10 between ourselves and First Nations is ongoing for
11 sure. And the third question, again, Mr. Taylor,
12 was?

13 Q Just whether what you've just said and what Ms.
14 Gaertner was putting in earlier is related or part
15 and parcel of some of the things that were being
16 said earlier yesterday?

17 MR. SWERDFAGER: Absolutely, yeah.

18 Q I think Mr. Thomson, mainly.

19 MR. SWERDFAGER: Yeah. Yeah.

20 MR. TAYLOR: All right. Thank you. Ms. Gaertner chose
21 not to put any response material into the
22 overtures that the First Nations were putting
23 forward, Mr. Commissioner. I'll take that up with
24 Mr. Martland and see what more we might have and
25 how we might deal with that.

26 THE COMMISSIONER: Thank you very much, Mr. Taylor.

27 MR. MARTLAND: Mr. Commissioner, that, I believe,
28 concludes the evidence from regulatory panel
29 number 1. What we propose to do, rather than
30 standing down and losing time, if it's agreeable,
31 would be simply to have Mr. Thomson excused. He
32 returns on a separate panel tomorrow. Mr.
33 Swerdfager would remain in place and be joined by
34 three further witnesses, all of whom are present
35 and ready to go.

36 THE COMMISSIONER: Yes, certainly, that's fine.

37 MR. MARTLAND: Thank you. So I will ask the additional
38 witnesses for this panel, Drs. Marty, Sheppard and
39 McKenzie to please come forward. We've explained
40 to them the logistics. The binders are in front
41 of them, and once they are there, Mr. Registrar,
42 I'll ask they please be affirmed.

43
44 TREVOR SWERDFAGER, reminded.

45
46 THE REGISTRAR: The remaining three, I'll read your
47 affirmation.

1 MARK SHEPPARD, affirmed.

2
3 PETER McKENZIE, affirmed.

4
5 GARY MARTY, affirmed.

6
7 THE REGISTRAR: Thank you. Counsel?

8 MR. MARTLAND: Thank you. And what I'll do at the
9 outset is move through the background of these
10 witnesses. I'll try to do this in the most
11 expeditious manner, but inviting my learned
12 friends to identify a concern if they have one.
13 Rather than my long-winded greeting in of
14 biography or background about the witnesses, I'd
15 like to rely on the CVs and the information set
16 out there.

17 First of all, for three of these witnesses,
18 Mr. Commissioner, I'll be asking to have them
19 qualified as experts. Mr. Swerdfager's the
20 exception to that. His CV is Exhibit 1578. I
21 don't propose to review his background now.

22
23 EXAMINATION IN CHIEF ON QUALIFICATIONS BY MR. MARTLAND:

24
25 Q Dr. Marty, sir, if I might turn to you, please.

26 MR. MARTLAND: And Mr. Lunn, if you could bring on
27 screen number 1, please, from Commission's list of
28 documents?

29 Q Do you recognize that, sir, as being your CV?

30 DR. MARTY: Yes.

31 MR. MARTLAND: If this might be the next exhibit,
32 please?

33 THE REGISTRAR: 1659.

34
35 EXHIBIT 1659: *Curriculum vitae* of Gary Marty

36
37 MR. MARTLAND: And without reviewing the information
38 contained therein, but relying on what it says,
39 I'm proposing to have this witness qualified as an
40 expert in fish toxicology and fish pathology, with
41 a specialty in veterinary pathology. And I don't
42 see anyone rising to object.

43 THE COMMISSIONER: Very well, thank you.

44 MR. MARTLAND: Number 3 on our list of documents, I
45 hope will be Dr. Sheppard's CV.

46 Q Dr. Sheppard, sir, do you recognize that as being
47 your CV?

14

PANEL NO. 59

In chief on qualifications by Mr. Martland

In chief by Mr. Martland

1 DR. SHEPPARD: I do.

2 MR. MARTLAND: If this might be Exhibit 1660, please.

3 THE REGISTRAR: So marked.

4

5 EXHIBIT 1660: *Curriculum vitae* of Mark

6 Sheppard

7

8 MR. MARTLAND: Again, relying on the information

9 contained in that document, I'll ask that this

10 witness -- and I can advise further, Mr.

11 Commissioner, Commission counsel have circulated

12 witness summaries that summarize the expertise and

13 communicate that to participants in addition to

14 the CVs. I don't propose to put those in, but

15 that information has been communicated.

16 On the basis of this witness's background, I

17 ask to have him qualified as an expert in

18 veterinary medicine, with experience in fish

19 health. Again, seeing no objection, I'll ask to

20 have that qualification made, please.

21 THE COMMISSIONER: Thank you.

22 MR. MARTLAND: Mr. Commissioner, number 2 on Commission

23 Counsel's list of documents is Dr. McKenzie's CV,

24 I expect.

25 Q Dr. McKenzie, is that correct?

26 DR. MCKENZIE: Yes.

27 MR. MARTLAND: If this might be Exhibit 1661, please?

28 THE REGISTRAR: So marked.

29

30 EXHIBIT 1661: *Curriculum vitae* of Peter

31 McKenzie

32

33 MR. MARTLAND: On a similar footing, I'll ask to have

34 this witness qualified as an expert in veterinary

35 medicine, with experience in fish health.

36 THE COMMISSIONER: Thank you

37

38 EXAMINATION IN CHIEF BY MR. MARTLAND:

39

40 Q At the outset, panel members, and this is directed

41 to the three veterinarians on the panel, we began

42 hearings last week, some of you may be aware, on

43 the topic of disease. We heard from witnesses

44 such as Michael Kent and Stewart Johnson, and I

45 neglected to ask some fairly obvious first

46 questions. Perhaps I'll take the opportunity to

47 do that in a quick way, if I might ask one of you

- 1 to help us in understanding some terminology. One
2 question is the meaning of pathogen as opposed to
3 disease, and pathogen as opposed to infectious
4 pathogen, if there is a distinction. I don't have
5 a preference as among the witnesses. Maybe we'll
6 take turns. Dr. Marty?
- 7 DR. MARTY: There are many microorganisms that can
8 infect fish and so that's one level of association
9 with microorganisms, they're just present. The
10 next thing is the microorganism, in some cases,
11 may cause problems in the fish, and in that case,
12 it would be called a pathogen. Now, you had one
13 other question, I think?
- 14 Q Infectious pathogen, is "infectious" necessarily
15 part of pathogen, or there are non-infectious
16 pathogens?
- 17 DR. MARTY: I think all pathogens would be considered
18 infectious in some regard. There may be
19 intermediate hosts that make the interaction more
20 complex. There is also a difference between
21 disease and not disease. Disease is a broader
22 category. It includes pathogens, but it also
23 could include things like exposure to toxins, and
24 I think Dr. Rensel addressed that in a previous
25 panel.
- 26 Q With respect to the term, "disease agent," I'll
27 try and be fair in peppering you with these
28 questions, Dr. McKenzie, what does that term refer
29 to, "disease agent"?
- 30 DR. MCKENZIE: Disease agent. So just to add on to
31 what Dr. Marty said, disease can be other things,
32 other than infectious pathogens. So disease
33 should not be included only as a microorganism
34 causing a heart disease that's not caused by a
35 microorganism. So there is another level of that.
36 So when you're referring to a disease -- or what
37 was the terminology, sorry, again?
- 38 Q Disease agent.
- 39 DR. MCKENZIE: Disease agent. So in that case, when
40 there's a specifically defined disease and
41 negative impact on the host, the pathogen that is
42 associated with causing that disease would be the
43 disease agent. And again, it could be a toxin, as
44 Dr. Marty said.
- 45 Q Dr. Sheppard, but you're welcome to defer to a
46 colleague, if you'd like, they may owe you one if
47 you do that, "viral particle" was the next term

- 1 that we've heard described, and I don't know that
2 it's perfectly clear what that refers to.
- 3 DR. SHEPPARD: A viral particle can't really be
4 described as a living entity, it can't replicate
5 on its own, Commissioner. It's essential that it
6 invades a host and makes use of the host's
7 metabolic cellular activity. The viral particle,
8 itself, is an accumulation of DNA or an RNA
9 genetic material, and then it uses the host animal
10 and its cells to replicate.
- 11 Q My last few terms, indeed, will take me into my
12 next few questions, which look to have a brief
13 understanding of the work that each of you in
14 relation to fish farms. And by fish farms, I'm
15 thinking of finfish aquaculture facilities on the
16 coast of this province for today's purposes. So
17 the terminology question, Dr. Marty, I'll ask of
18 you. The terms, "necropsy" and "histopathology"
19 are familiar ones in your world, but they may not
20 be familiar for folks in the room. Could you help
21 us understand what they refer to, please?
- 22 DR. MARTY: The term, "necropsy," is a broad term
23 that's used for examination of the dead. It's a
24 broad term if you're looking at any animal,
25 essentially. If you're doing a necropsy on a
26 human, it's called an autopsy, "auto," looking at
27 yourself. So an autopsy is a subset of a
28 necropsy. And your second question?
- 29 Q And the necropsy work you would do in connection
30 with fish we'll come to in a moment, but I take it
31 that involves, obviously, examining a dead fish?
- 32 DR. MARTY: Correct.
- 33 Q "Histopathology" was the second term.
- 34 DR. MARTY: Histopathology. The broad term,
35 "pathology," is the study of disease, just the
36 study of disease. Histopathology is the study of
37 disease at the cellular level. And the key
38 specialty that I have that would separate out me
39 from, say, the other veterinarians here is that my
40 ability to look at a section of tissue under the
41 microscope and come up with a diagnosis and then
42 write my report. They're trained to read my
43 report and interpret it with their clinical and
44 other findings, but I'm the one who's trained to
45 actually look at the slide, itself, and render a
46 diagnosis.
- 47 Q With respect to the work that each of you does,

1 first of all, if I can start at the farm level,
2 Dr. McKenzie, with you, sir, if you could help us
3 in a quick way to understand the day-to-day work
4 that you do, and I should perhaps briefly pause
5 just to make it perfectly clear that by way of
6 your background, you are one of the veterinarians
7 or a veterinarian for Mainstream, one of the fish
8 farm operators on the coast. What do you do in
9 your work, what responsibilities do you have in
10 your job, please?

11 DR. MCKENZIE: So as a veterinarian, I have a broad
12 range of training, as do we all, in both the
13 areas, in animal health, but also in food safety
14 and food quality. And so my role in the company
15 can be quite broad and is quite broad in looking
16 at everything from egg to plate, as we say.

17 So aside from my role, I won't discuss any
18 further the role in food safety and those aspects,
19 but as far as fish health is concerned, my role is
20 to manage all areas of fish health within the
21 company. This starts off with our genetics
22 program, how we monitor disease in our brood fish,
23 how we maintain the eggs in the juvenile fish that
24 we produce are in top physical health. I also
25 monitor and control and manage disease throughout
26 the production cycle, both on the freshwater,
27 saltwater side, to ensure that any disease or
28 concern that we're having is being managed.

29 Now, this is done fundamentally through the
30 process, through one document, which is the Fish
31 Health Management Plan. The Fish Health
32 Management Plan is sort of the Bible for our
33 production system in the sense that it lays out
34 all the factors within our production cycle.
35 Every activity that we undertake, we consider fish
36 health and welfare. So our fish health management
37 plans dictate how we do business to ensure that
38 our fish are kept in optimum fish health. And so
39 it's my role to ensure that, one, that document is
40 as accurate as it could be, two, that it's updated
41 as science and our understanding of disease and
42 concerns evolve, and three, to ensure that it's
43 implemented at its full length.

44 On top, as a strictly pure veterinarian, my
45 role, again, is to manage disease. So I do a lot
46 of analysis on disease, monitoring disease on all
47 our farms and hatcheries, looking for changes,

1 looking for trends, looking for identifications or
2 deviations from what I consider the normal, normal
3 fish health. And as a result, then, I would
4 conduct the investigations into any deviations
5 from normal and from that, draw conclusions. I
6 would rely on people such as Dr. Marty to provide
7 me information in order to better understand my
8 knowledge of what's going on in our farms, and I
9 would add that to my clinical experience, which is
10 how the fish are behaving, how the fish are
11 performing, what I'm seeing grossly during a
12 necropsy and other tests that we may take in
13 house, other laboratories, other steps. History,
14 I also have background in history, which Gary
15 Marty, Dr. Marty, wouldn't always have. I know
16 where those fish came from, any issues they've had
17 all along the path. So it's my job to sort of
18 keep that all into perspective and then ensure
19 that it's being applied into our production
20 scheme.

21 Q You made a reference to "our fish," and you're
22 working for the operator of the fish farm. I
23 wonder if you can help me to understand, is there
24 for veterinarians, similar to human doctors,
25 doctors who -- I don't know what the right
26 terminology is here without this turning slippery
27 so I won't try to head down that path, but is
28 there a similar concept of the duty to the
29 patient, and if there is a similar ethical kind of
30 a concept, is your ethical duty in your capacity
31 working for an operator to the fish on the farm
32 and/or wild fish, or other wildlife, I suppose?

33 DR. MCKENZIE: The veterinary profession in B.C., the
34 College of Veterinarians for British Columbia, we
35 have a code of ethics and conduct, and this is
36 something we rely on. I believe it is at Tab 18
37 of --

38 DR. MARTY: Provincial tab.

39 DR. MCKENZIE: Provincial Tab 18 --

40 Q Okay.

41 DR. MCKENZIE: -- is the document that actually is the
42 Code of Ethics.

43 MR. MARTLAND: And I'll just narrate for the record,
44 Dr. Marty assisted you by referring you, I take
45 it, to Tab 18, there.

46 DR. MCKENZIE: And this is a code of ethics that
47 applies to all veterinarians, regardless of

1 species, because we do work with a large number of
2 species, and it outlines our responsibilities.
3 And our responsibilities are, and as it defines in
4 there, to the public is one of our
5 responsibilities as a veterinarian, to the animal,
6 to the owner, as well as to the profession,
7 itself. And that's laid out in our Code of
8 Conduct that we take very seriously.

9 Q Do you face situations in your work where there
10 may be a conflict as between what's in the best
11 interests of the fish on the farm and what may be
12 in the best interest of wild fish in the vicinity,
13 let's say? It's easy for me, as a lawyer, to see
14 conflicts of interest or to frame it that way. I
15 don't know if that describes what you encounter.

16 DR. MCKENZIE: Sorry?

17 Q The question is do you have a situation where
18 there's a conflict, where you're pulled in
19 different directions and one, the duty to the fish
20 on the farm has to override, or become the higher
21 priority than any secondary concern about
22 implications of a measure or non-measure for wild
23 stocks in the area?

24 DR. MCKENZIE: I don't believe I can give you an
25 example of that. I can give you an example of the
26 reverse, though, where it becomes a bit of a
27 conflict for me. We run a system of sea lice
28 treatments that we consider, and we take the
29 approach to treat fish, regardless of sea lice
30 levels, in our spring out-migration periods in
31 order to ensure that the lice levels on our farms
32 are as low as possible during the out-migration of
33 wild stocks.

34 Medically, these treatments are not
35 necessary, in some cases where lice levels are
36 incredibly low on farms, but to be cautious, we
37 use that. Prophylactic treatments and the use of
38 medication in that method goes against some of the
39 better judgment and the decision making that a
40 veterinarian really should hold. But we do that
41 for the greater good and we've sort of wrestled
42 with that for years, but that's my point there.

43 Q All right. So you're describing there, if I have
44 it right, and this may indeed include or refer to
45 the three motile lice per fish threshold for a
46 management response, which may include a SLICE
47 treatment.

1 MR. MARTLAND: I'll just narrate, that's in the PPR at
2 paragraph 70, for those who want to read up on it
3 further.

4 Q But at a general level, I think what you're
5 describing there is that there can be, and perhaps
6 your perspective, but tell me if I have this
7 right, is that that standard for treatment, or
8 some of the management responses that are required
9 of you by government may be measures that aren't
10 specifically needed, in your view, for the fish on
11 the farm, but are intended to serve the interest
12 of addressing the health of wild stocks.

13 DR. MCKENZIE: Yes. Now, I guess, one other example
14 that comes to mind that is more towards what you
15 were asking was years ago, when we found cases of
16 IHN on a farm, and I diagnosed a case in a brood
17 stock facility, it was very contrary to the
18 business model of the company to cull these fish
19 because the mortality was actually not that high.

20 Q Mm-hmm?

21 DR. MCKENZIE: There was a number of researchers that
22 were very interested in keeping these fish so that
23 we could see if there would be a resistant strain
24 of Atlantic salmon that could be produced and that
25 was against my judgment because the risk of
26 disease release, not only to farms in the area,
27 but wild stocks and that, I was very adamant that
28 these fish should be removed from the water. And
29 following a series of discussions, that ultimately
30 was the outcome, but that was probably the closest
31 thing to a conflict, I would say, but it never
32 really was. I was listened to. And at the time,
33 I was a very new veterinarian in the field so it
34 was important to me that the company recognized
35 the ethical obligation I had and followed through.

36 Q I haven't got so far in learning everyone's day-
37 to-day work, but I would like to indeed pick up,
38 we've had a useful discussion here with respect to
39 the sea lice treatment approach, if I could ask
40 both Dr. Sheppard and Dr. Marty, do you have
41 comments on whether the three motile lice
42 standard, or the management approach, perhaps more
43 broadly to fish farms treating sea lice, is it a
44 scientifically-based standard, as opposed to one
45 that has a political provenance?

46 DR. SHEPPARD: That's a good question, and before I
47 answer that, Mr. Commissioner, just one for the

1 record. Mr. Martland suggested that any
2 consideration of sea lice medications by private
3 practitioners is not regulated by any government
4 body. It's an option that they can go to, but to
5 my knowledge, there are no regulated treatments of
6 animals by government bodies. It's a veterinary
7 decision.

8 In answer to your question, Mr. Martland,
9 about the --

10 Q And I'm sorry to do this, but I wouldn't want to
11 let this pass, just to make sure I'm clear, but
12 when you say it's not regulated, I take it SLICE
13 is regulated, but are you describing that it's not
14 mandated that there be an application of SLICE?

15 DR. SHEPPARD: That's more accurate, yes.

16 Q All right. I just wanted to be clear on that.

17 DR. SHEPPARD: Yeah, the product, itself, is certainly
18 licensed and available for prescription by a
19 licensed veterinarian, but it's not mandated by
20 the governing body.

21 The trigger level of three motile lice per
22 fish in the out-migration period was initiated,
23 that trigger, I think, around the period of 2004,
24 and it was largely based on the precautionary
25 principle in looking at the scientific information
26 from other regions that were having effects by a
27 pathogenic strain of this *Lepeophtheirus salmonis*,
28 Atlantic salmon louse, or Atlantic Ocean louse.
29 And so the Province of British Columbia adopted
30 that same level, which would be comparable to what
31 was seen as a trigger level in Norway and in
32 Europe.

33 Q Thank you. Let me, in fact, move to Dr. Marty and
34 ask you the basic question about your job. As the
35 provincial fish pathologist, what do you do, how
36 does your work tie to finfish aquaculture? And if
37 you could help us, I think you started into this
38 distinction between the work you do and that
39 veterinarians more broadly may do in relation to
40 aquaculture, that would be helpful.

41 DR. MARTY: Okay. I'm based at the Animal Health
42 Centre in Abbotsford, and that is the veterinarian
43 diagnostic laboratory run by the Province of
44 British Columbia. We are a full service
45 laboratory that does all species of animals. I am
46 specifically charged to work with fish so any
47 fish, whole fish, or fish samples that are

1 submitted are run through our technicians, but I'm
2 the one who does the final case send off on those.

3 In most cases, our laboratories are set up in
4 the centre of the poultry and dairy industries so
5 we're about a day away from most of the
6 aquaculture industry. So most of my clients,
7 including our fish health audit and surveillance
8 program, sample the fish on the sites. The fish
9 tissues decompose very rapidly and so they are
10 trained to sample the fish, preserve the samples
11 appropriate for the methods that we do for
12 diagnostic methods and then send them to me.

13 Technicians in our laboratory will do the
14 bacteriology that's necessary. They'll do PCR
15 tests for tests that are requested. And then I
16 will do the histopathology.

17 In the end, all these different diagnostic
18 modalities are brought together in a single case
19 report that I will examine. I'll usually come up
20 with a final diagnosis of what I think maybe is
21 the most likely cause and also some other causes,
22 and often, in my comments, I'll just include some
23 factual information that will give some background
24 information about the changes that I'm seeing.
25 And then those will go out as a report that will
26 then go either to the veterinarian in the field,
27 like Dr. McKenzie, or go to the regulatory
28 veterinarians like Dr. Sheppard.

29 So we receive both cases as part of official
30 government audit programs and cases directly from
31 the fish farms when they have problems with their
32 fish.

33 The other things we receive from the fish
34 farms, they'll often do a fish health screen when
35 they're going to do a transfer, or something, and
36 these are often just healthy fish. They just want
37 to certify and have an independent lab that
38 certifies that their fish are free of diseases of
39 concern.

40 Dr. Sheppard, in skipping over the reading
41 in, really, of your biography, I didn't -- it
42 would have been clear from someone who'd read your
43 CV, you know work for the DFO's Aquaculture
44 Environmental Operations Unit, but indeed, your
45 handover was close to or coincided closely to the
46 handover to federal regulation for aquaculture,
47 you previously worked with the Province. If you

1 could help us understand your present work, in a
2 quick way, at least, your present work in the
3 context of the work you used to do for the
4 Province?

5 DR. SHEPPARD: Yes, and I think this will be discussed,
6 I noticed it here on Tab 2 of the Canada doc
7 binder, which lays out the work that was performed
8 in the province, as well, and is following on now
9 within the Department of Fisheries and Oceans, but
10 my role was, literally, with the Provincial
11 Government was as the aquatic animal health
12 veterinarian to oversee the Fish Health Program
13 for the Province and it's largely a program to
14 monitor and collect, and record, and then report
15 out on the information of health-related findings
16 at the farm on an audit basis. And largely, that
17 program was in place so thank you very much for --
18 it sort of outlines that in the first paragraph of
19 this document.

20 Q All right. So thank you, that's actually helpful.
21 You've referred to Canada's Tab 2, this document
22 on the Fish Audit and Surveillance Programs. This
23 is a description, I take it, then of the work you
24 do?

25 DR. SHEPPARD: Yes, I did draft this two-page document
26 as a quick synopsis as to how the program was
27 designed, why it was designed and how it was
28 monitored.

29 MR. MARTLAND: I'll ask this, please, to be marked as
30 the next exhibit.

31 THE REGISTRAR: Exhibit 1662:

32
33 EXHIBIT 1662: British Columbia's Fish Audit
34 and Surveillance Programs
35

36 MR. MARTLAND:

37 Q Mr. Swerdfager, you may be wondering why you're
38 here. Obviously, folks yesterday couldn't get
39 enough of you so you're back. What I'd like to
40 do, though, or at least our thinking was that it's
41 also important to have some evidence today with
42 respect to not only the questions of disease,
43 pathogens, the health issues arising from fish
44 farms, but also from the government and a
45 regulatory perspective of what the approach is.
46 I'd like to try to ask you some questions,
47 sir, by using Tab 8 of Commission's list of

1 documents. You'll see, we know from your evidence
2 yesterday, and your background, you've been
3 intensely involved in the development of the
4 Pacific Aquaculture Regulation, as well as in the
5 DFO's approach to fish health vis-à-vis
6 aquaculture. This document was put in as Exhibit
7 1611 yesterday by Canada.

8 MR. MARTLAND: This is number 8, Mr. Lunn on
9 Commission's list of documents, Exhibit 1611.

10 Q This is called, "The Approach to Fish Health." I
11 should pause just to confirm, is this in a draft
12 form?

13 MR. SWERDFAGER: It is in a draft form.

14 Q All right. And I won't do this at any great
15 length, but just to frame the question, if we look
16 at the bottom of page 2, and then on to pages 3, 4
17 and 5, looking at least at the sub-headings we see
18 at the top of page 3, keeping fish healthy is one
19 of the key aspects of the approach. I'll pause
20 just to ask this question here, but maybe I'll ask
21 the same question for the other sub-headings. We
22 see, at the start of that sentence:

23
24 The fish held at culture facilities must be
25 provided with a healthy and appropriate
26 rearing environment.

27
28 So the premise, or at least the focus would seem
29 to be on the fish on the farm vis-à-vis what this
30 document describes, as opposed to wild fish? Is
31 that a fair way to put it?

32 MR. SWERDFAGER: This particular document, when it is
33 completed, and it's not --

34 Q No.

35 MR. SWERDFAGER: -- will be focussed very much on
36 guiding the Fish Health Management Program of the
37 aquaculture activity, itself. Very, very
38 specifically focussed in that regard. So it does
39 not set out to put forward a fish health approach
40 for all organisms in the sea, if you will.

41 Q No, fair enough.

42 MR. SWERDFAGER: So that we read about, and I won't
43 read it in, but keeping fish healthy, the bottom
44 of that page, "Monitoring fish health," onto page
45 4, "Responding to Fish Health Issues," then on
46 page 5, "Recording and Reporting Fish Health," and
47 then, ultimately, "Reference to Fish Health

1 Management Plans." Dr. McKenzie previously
2 touched on the fish health management plans, or
3 FHMPs, just to add another acronym to our
4 hearings. From a regulatory point of view, could
5 you help us understand where these fish health
6 management plans fit in, or will fit in? I take
7 it, they are going to be part, or are required as
8 a condition of licence for the fish farm operator?

9 MR. SWERDFAGER: The logic here is that what we wanted
10 to do is make sure that there is no sense that
11 fish health management, or fish health management
12 plans, I guess, specifically, are in any way,
13 shape or form discretionary, advised, thought to
14 be a good idea. They are required. And so this
15 document begins the process of setting out what
16 will be in those, how they will unfold, and so on.
17 And a big part of Dr. Sheppard's work is going to
18 be to help us design, in quite a bit of detail, a
19 structure and content of a FHMP, a fish health
20 management plan and what it should contain, and so
21 on. And as I say, or as the document, rather,
22 says, it will be a condition of licence, it will
23 be something that is mandatory and is required.

24 Q When do you expect that will -- I take it it's not
25 the case now, that a FHMP is --

26 MR. SWERDFAGER: It's not the case now because when we
27 introduced the licences on the 19th of December,
28 the fish health management plans that we sought to
29 attach them were not all complete, they were not
30 all the same form and structure, and again,
31 perhaps Dr. Sheppard will talk about, if he
32 wishes, the content of them. But what we've done
33 is we've set out what we see those plans being --
34 or what's being required in those plans and they
35 will form part of the licence conditions in the
36 next batch or suite of licences that we issue in
37 December of this year.

38 Q Dr. Sheppard, our Policy and Practice Report makes
39 reference to FHMPs in the provincial context.
40 Maybe you can help us understand this, they're not
41 a brand new creation moving forward, they're
42 something that did exist under the provincial
43 regime, so to speak, and that is now being
44 developed, perhaps in a different way, for the
45 federal environment. Could you help us understand
46 what the differences are or are expected to be in
47 the work that's ongoing there?

1 DR. SHEPPARD: Yes, and I apologize if I'm pre-empting
2 Canada counsel here, but they have noted on Tab 6
3 of their binder the required elements of a fish
4 health management plan, dated 2003, and they've
5 also noted on Tab 8, I believe, the actual
6 template document for a fish health management
7 plan.

8 Q Well, this is helpful. I'll just address Mr.
9 Taylor's time allocation. So let's go to Tab 6,
10 The Required Elements of a Fish Health Management
11 Plan. This bears the date of 2003. What, in
12 brief, is this? Who's prepared this document?

13 DR. SHEPPARD: That document, "The Required Elements,"
14 was developed by my predecessor in 2003 to inform
15 the marine salmon producers what the minimum
16 requirements would be within their health
17 management plans that they develop. So it's a
18 guide to a bit of an overview, and I think on, I'm
19 going to say page 3 of that document, if it's
20 available, on the bottom, there, the heading,
21 "Goals of a Fish Health Management Plan," fairly
22 succinctly lays out the purpose of developing one.

23 Q All right.

24 DR. SHEPPARD: And so that was through the provincial
25 oversight of the industry. And then on the
26 template, itself, was the document which is a bit
27 of a -- well, simply a template that the farmers
28 would use in conjunction with their veterinarians
29 to write and develop their own corporate health
30 management plan, following that same format, with
31 the same headings, et cetera, but, of course, it
32 would be catered to their own individual business.
33 And if I may just add a little more, it's that
34 these health management plans and this template
35 can almost be broken out into two main components.
36 One is the main body or text which lays out the
37 fundamental guiding principles, if you will, of
38 health management. One example would be the
39 collection of your carcasses on a regular and
40 routine basis, you know, for early detection and
41 diagnostic value, that sort of thing, but you'll
42 notice, at the bottom of that particular
43 fundamental section, there would be a reference to
44 an appendix, which is largely the standard
45 operating procedure of that particular fundamental
46 aspect. So when you go look at that standard
47 operating procedure for collecting carcasses, that

1 portion might vary from site to site within the
2 company. For example, one farming system may use
3 divers to collect their carcasses, whereas another
4 farming system on the other side of the Island may
5 use what's called an uplift system, which will
6 bring their carcasses to the surface mechanically.
7 So those standard operating procedures are more
8 specific to the particular site, and those
9 standard operating procedures could be reviewed
10 and revised on a fairly regular basis. So you
11 will notice one of the requirements of the
12 condition of licence, the federal conditions of
13 licence now is that it's been asked that all
14 marine salmon farmers that have an existing health
15 management plan, that they submit that, and they
16 have. And that will be revised, those plans will
17 be revised based on an update of this template by
18 the federal government.

19 And the second part of the condition of
20 licence is to annual submit revisions to that
21 health management plan when, more specifically, it
22 refers to annually submit the fine detail of those
23 standard operating procedures. For example, they
24 may change the type of disinfectant that they use,
25 or they may change the concentration of that
26 disinfectant that they use so those are the
27 details that we're looking for. They're not
28 really at liberty to change the fundamentals of
29 the health management plans.

30 MR. MARTLAND: Before I forget to do it, I'd like to
31 have, first, Tab 6 from Canada's list of
32 documents, the June 2003 document, marked as the
33 next exhibit, please.

34 THE REGISTRAR: Exhibit 1663.

35
36 EXHIBIT 1663: Required Elements of a Fish
37 Health Management Plan for Public and
38 Commercial Fish Culture Facilities in British
39 Columbia, June 2003
40

41 MR. MARTLAND: If I could propose as Exhibit 1664 Tab 8
42 from Canada's book, the template?

43 THE REGISTRAR: 1664.

44
45 EXHIBIT 1664: Template for Development of
46 Facility - Specific Fish Health Management
47 Plans

1
2 MR. MARTLAND: And just to keep Mr. Lunn on his toes,
3 if we could move to Exhibit 1 --
4 DR. McKENZIE: Oh, excuse me.
5 MR. MARTLAND: If I just might add to this, before I
6 forget --
7 DR. McKENZIE: Yeah.
8 MR. MARTLAND: -- 1594, Mr. Lunn.
9 Q And I'll just be looking to connect the dots to
10 confirm if 1594, I expect we'll see that is, Dr
11 Sheppard, if you have a look on the screen, sir,
12 you'll see, I hope, when you refer to the
13 conditions of licence, that's what that is?
14 DR. SHEPPARD: Yes.
15 MR. MARTLAND: Sorry, your microphone?
16 DR. SHEPPARD: I'm sorry. Yes, those are the Marine
17 Finfish Conditions of Licence from Department of
18 Fisheries and Oceans.
19 Q Thank you. Dr. McKenzie, you had a brief point?
20 DR. McKENZIE: I just wanted to add a brief point on
21 the background of the fish health management
22 plans. When they were developed back in 2002,
23 2003, when we first got started, they were
24 developed as part of what was a provincially-led
25 committee that was set up that had representatives
26 from DFO, Freshwater Fisheries Society, academia,
27 the industry, as well as the provincial
28 veterinarian, and as a group, we developed the
29 template and the contents that we all recognized
30 that were important. The original format of the
31 Fish Health Management Plan, and the intent of
32 that Fish Health Management Plan was to have it
33 implemented in all levels of aquaculture, so not
34 just industry, but Freshwater Fisheries Society,
35 as well as DFO enhancement facilities and any of
36 their culture facilities. We went through that
37 process. We actually went through a process where
38 we developed the different sectors to help the
39 fish health management plans, brought them back to
40 that committee. We then reviewed them and updated
41 that template based on areas they may have missed,
42 or that weren't well clarified. So I wanted to
43 just add that it was quite a comprehensive
44 process, with different stakeholders involved.
45 And we also saw very different implementation
46 strategies. The industry, of course, it was part
47 of our condition of licence and it was very much

1 bought into under the process. Freshwater
2 Fisheries Society has implemented a lot of theirs
3 under their structures. And DFO, as Dr. Stephens
4 reported in his expert report, you know, there has
5 been some struggles implementing fish health
6 management plans and all the levels of enhancement
7 facilities just because of the diversity. And
8 certainly, that was still the goal. And this was
9 made to be a part of the fish health database
10 which, again, was going to be a collaborative
11 effort that the salmon farmers have continued to
12 run with.

13 Q I'd like to move on. I think, Dr. Sheppard, you
14 may be leaning towards the mike, if you have a
15 brief point, sir, and then I'll --

16 DR. SHEPPARD: Just not to put too fine a point on it,
17 but just now that you mention the conditions of
18 licence, the federal conditions of licence that
19 the fish health management plans was also a
20 condition of licence under the provincial regime.

21 Q Thank you. What I'd like to ask about next is a
22 question pertaining to new pathogens and/or
23 disease. There's been some prominence to concerns
24 that have arisen about the possible arrival of, in
25 particular, ISA, and in particular, in the context
26 of concerns about how aquaculture facilities and
27 operators import eggs. What I'd like to do is ask
28 you to respond to, I take it, a shorthand, when I
29 describe that kind of a concern, that's a concern
30 that you've heard about and may have some
31 familiarity with. I'd like to ask for your
32 responses to those concerns at a broad level.

33 Dr. McKenzie, your background includes having
34 worked with CFIA. Mr. Swerdfager, you have
35 familiarity with the introductions and transfers
36 process so if it's helpful for you to rely on that
37 background in answering this question, I'd
38 appreciate that. I don't have a batting order
39 here so I don't know if you gentlemen -- Dr.
40 McKenzie, would you like to first --

41 DR. MCKENZIE: What specifically --

42 Q Well, the general question is ISA and egg
43 importations as the specific way that this has
44 arisen, but the general question is about the
45 concern that fish farm operators may be or may in
46 the future be responsible for importing exotic
47 diseases that could have devastating impacts on

1 wild stocks.

2 DR. MCKENZIE: Okay. Yes, certainly, through my role,
3 and just to clarify my role in CFIA, when I worked
4 for the National Aquatic Animal Health Program, my
5 role was the National Manager of Import and
6 Export, and we were developing regulations and
7 programs to control imports and exports through
8 the new regulation that was being set up under the
9 **Health of Animals Act**. So that's the future, but
10 through that process, we reviewed a lot of
11 international strategies, standards and approaches
12 to import and export controls.

13 The import controls that are in B.C. and that
14 have been in place in B.C. for a number of years
15 are internationally renowned as far as being very
16 strict, almost to the point where they're too
17 restrictive for many countries to consider.

18 So there are many levels of control, but the
19 fundamental process that's been in place over the
20 years, and Trevor, I'm sure, will add to this, is
21 the introductions and transfers process, which is
22 the control of any introduction into British
23 Columbia.

24 Now, the Introduction and Transfers Committee
25 are an interesting structure in the sense that
26 they are a collaborative effort between the
27 federal and provincial governments and, therefore,
28 different provinces have slightly different
29 criteria and ways that they approach imports. So
30 I'm speaking specifically of how B.C. handles
31 imports. So there is a process in place. There
32 has been imports allowed over the last few years,
33 and the B.C. Salmon Farmers have produced a
34 document by John Lawrie that has a summary of all
35 the imports that have occurred over those time
36 periods and the mitigative steps that are in
37 place. But to summarize, the Introduction and
38 Transfers process is the controlling body. So
39 I've worked, as I said, for CFIA, but I've also
40 worked in the industry on the import side.

41 As far as imports are concerned, if an
42 industry is interested in importation of eggs into
43 British Columbia, they make an application to the
44 Department of Fisheries and Oceans. The
45 Introduction and Transfers Committee, and the
46 insurers and the local fish health officer ensure
47 that the applicant is able to meet the criteria

1 that is laid out under the fish health protection
2 regulations, which stipulate the criteria that you
3 have to have an approved source that has met
4 standards that are laid out under the **Fish Health**
5 **Protection** Regulation, you have to have a facility
6 in order to receive those eggs that is considered
7 a quarantine facility with acceptable water
8 treatment pre and post that restricts those
9 importations. In addition, you have to have
10 testing done after the arrival into British
11 Columbia. And B.C.'s unique in that they limit
12 imports to only eggs. You can't be importing
13 fish, salmonid fish. Again, this is disease
14 mitigation.

15 So the process from an industry perspective
16 is you make that application, you're provided with
17 -- assuming that you can find a source that is
18 approved by DFO where they conduct a risk
19 assessment and an inspection of that facility. If
20 that facility meets the standards that is laid out
21 by **Fish Health Protection** Regulations, then DFO
22 provides an import contract to the applicant. It
23 lays out the conditions of testing, quarantine,
24 release, communications that have to be relayed to
25 DFO and approved as you go through the process.
26 The eggs have to be put into quarantine. They go
27 through a series of testing, usually once a month.
28 So it's usually six or seven tests during the
29 quarantine period. Only after satisfactory
30 testing results are provided to DFO from a DFO-
31 approved lab are we able to release them from that
32 quarantine. They then go into an isolation
33 process, where they can be on natural water, but
34 are still kept separate from all other production
35 facilities. They are continued to be tested
36 during that period and only at that point when the
37 final testing is approved by DFO can they be
38 released. At that point, they still need to be
39 tracked as an individual group in the saltwater.
40 All of that information is provided to DFO through
41 those various steps.

42 ISA, in particular, is a disease that is on
43 those import contracts that we were required to
44 test for. We also -- speaking for Mainstream, we
45 require of our exporting company, actually, to be
46 testing for ISA, as well, with a methodology that
47 we prefer, which is PCR. So we have that stage

1 and then we test for ISA on, as I said, up to six
2 or seven times prior to release. We also are
3 monitoring those fish on a daily basis. Myself,
4 I'm responsible for clinical signs and evaluating
5 those fish at all those different stages, as well
6 a local fish health officer has a responsibility
7 to come by, visit the fish, ensure the facility is
8 sufficient prior to the eggs arriving, ensuring
9 the fish health and the quality is sufficient
10 during their quarantine period before they are
11 released from that. So there's a massive number
12 of steps in order to reach that end goal of
13 releasing those fish into native waters.

14 Q Mr. Swerdfager, I'm going to ask you a question in
15 just one moment on this topic, but first, Dr.
16 McKenzie, the testing that you've just described,
17 is it ever revealed or found ISA?

18 DR. MCKENZIE: We've never found ISA in that testing,
19 no.

20 Q Mr. Swerdfager, from your point of view, Dr.
21 McKenzie has outlined the system that's in place.
22 How do you respond to the criticism that the
23 Department's approach here is inadequate, that the
24 risks outstanding are too significant?

25 MR. SWERDFAGER: Well, I suppose I would respond in two
26 ways. The first is that the process that Dr.
27 McKenzie has just laid out is, from my point of
28 view, at least, one that is extremely rigorous,
29 extremely thorough, and we have a very high degree
30 of confidence in it. And we are quite confident
31 that the regulatory regime that we have had in
32 place and that we have in place now effectively
33 prevents the introduction via egg imports of
34 disease into Canada for the very reasons that Dr.
35 McKenzie has just laid out.

36 I would add simply two things, really. The
37 first is that as Dr. McKenzie pointed out, he was
38 focussed on British Columbia. I would just simply
39 add that we have a similar, not identical, but
40 very, very similar process in place for "the rest
41 of the country." Each province has a variance and
42 a nuance on it because of the particularities of
43 the province, and so on, but the system is one
44 that is national in nature. Its operation
45 reported up to me, as the Director General of
46 Aquaculture Management, so I'm quite familiar of
47 the structure of the process in each of the

1 provinces. So if someone wished to bring or
2 apply, rather, for an import into Canada and bring
3 it in to, say, Nova Scotia, you still have to have
4 a similar sort of permit to bring it from, say,
5 Nova Scotia to British Columbia. So internally,
6 within the country, it's not simply exports or,
7 rather, imports into British Columbia from other
8 nations, it's from anywhere outside the boundaries
9 of British Columbia. So we do have a very
10 comprehensive system in place, and I would note
11 that I wouldn't say it's, by any stretch, a daily
12 occurrence, but it is a regular occurrence that we
13 refuse applications for imports. We have not done
14 so or had any cause to do so in British Columbia,
15 but we refused two, for example, last year into
16 Nova Scotia, where there's an application to
17 import fish eggs from France. I won't list all of
18 the refusals, simply to note that the system is
19 not just simply a rubber stamp that says, "Lah-di-
20 dah, away you go."

21 The second thing that I would simply point
22 out with respect to amplifying on what Dr.
23 McKenzie has said is that the kind of information
24 that is being spoken about here has not,
25 historically, been made public, perhaps, in the
26 way that we could have and should have. We have
27 remedied that. We are now going to -- we have
28 already posted information on egg imports into
29 British Columbia. It's something we are going to
30 work on nationally, I might add, as an asterisk,
31 outside the bound of this question, so to speak.
32 But one of our concerns in the past is that if
33 people don't know things, necessarily,
34 occasionally, you make them up, or exaggerate, or
35 surmise things that are not there and we have not
36 done as good a job as we could have and should
37 have of putting that information out there in a
38 public way that says, quite simply, in black and
39 white, "Here's what was imported, here's the
40 time." And that, now, has been remedied and so it
41 will be a matter of routine that egg imports with
42 respect to aquaculture, in British Columbia, will
43 now be posted on the DFO website. I don't know
44 the frequency, simply because there just isn't a
45 lot. We're not going to post a monthly update if
46 nothing happens, so to speak, but it will be a
47 very, very regular updating and will be quite

1 public.

2 Q On an annual basis?

3 MR. SWERDFAGER: Mr. Martland, I'm not sure exactly if
4 it will be annual, it may be more frequent. As I
5 say, this is not an area where there's a lot of
6 activity so posting, shall we say, a monthly
7 update simply to say nothing happened, the benefit
8 of that is probably rather marginal, but I don't
9 actually know. We may end up doing that anyway,
10 just simply to indicate that nothing's happened.

11 Q Mm-hmm?

12 MR. SWERDFAGER: But I expect that the frequency of the
13 updates on that will be greater than annual. I
14 don't know if it will be monthly, weekly, it
15 certainly won't be daily, but it will be regular
16 and frequent.

17 Q Dr. McKenzie, you had a brief point?

18 DR. MCKENZIE: Just a very quick comment. I wanted to
19 reiterated the fact that the standards that have
20 been set have been recognized internationally as
21 being very robust, and those are the conditions
22 that are in place in B.C., if you look around the
23 world. The British Columbia Salmon Farmers
24 Association has also asked Dr. Larry Hammell,
25 who's the director of the OIE, Epidemiology and
26 Risk Assessment Committee on aquatic animal
27 diseases to do a review of the import documents.
28 And I believe that document was submitted for
29 identification previously. And he did a review of
30 the risk associated with imports since 1985 to
31 2009 and provided his commentary on that.

32 Q Thank you.

33 MR. MARTLAND: Mr. Commissioner, if I might take one
34 brief moment to confer with a colleague? Thank
35 you, Mr. Commissioner, that, from my perspective,
36 concludes the Commission's questions for this
37 panel. I wonder if I can put an asterisk on that,
38 to use Mr. Swerdfager's phrase, and propose that
39 we go to, if it's agreeable, perhaps a 10-minute
40 break now, and I can not quite finalize, in case
41 Ms. Grant or Ms. Chan has a further point that I
42 ought to address. So if I might propose we move
43 to a break now, please?

44 THE COMMISSIONER: Yes, thank you, Mr. Martland.

45 THE REGISTRAR: The hearing will now recess for 10
46 minutes.

47

1 (PROCEEDINGS ADJOURNED FOR MORNING RECESS)
2 (PROCEEDINGS RECONVENED)
3

4 THE REGISTRAR: Order. The hearing is now resumed.
5 MR. MARTLAND: Thank you, Mr. Commissioner. I have Mr.
6 Spiegelman, for Canada, next, 35 minutes.

7 MR. SPIEGELMAN: Good morning. For the record, its
8 Jonah Spiegelman for the participant Government of
9 Canada. Some of my ground was covered earlier
10 this morning, so whereas I was going to start with
11 a caution to answer very quickly, perhaps we can
12 take more time and give more comprehensive answers
13 than I had expected, so that's great.
14

15 CROSS-EXAMINATION BY MR. SPIEGELMAN:
16

17 Q I'll begin by asking a very broad question and
18 asking you whether you all agree with that, on
19 this panel, and that's this: Keeping cultured
20 fish healthy is an objective that's shared by all
21 stakeholders concerned with aquaculture; can you
22 all agree with that?

23 DR. MARTY: I agree.

24 DR. MCKENZIE: I agree.

25 DR. SHEPPARD: I agree.

26 MR. SWERDFAGER: Yes, absolutely I agree.

27 Q Dr. McKenzie, you commented, earlier, on some of
28 the measures in place, but I wonder if you could
29 expand a little bit on some of the measures taken
30 by aquaculture operators to ensure that the stock
31 in the pens remains healthy throughout their life?

32 DR. MCKENZIE: Okay, specifically, I guess, I might end
33 up taking you through a lot of the elements of the
34 Fish Health Management Plan, but to start off, we
35 -- industries are in control of their brood stock
36 programs. This is the ultimate -- this is the
37 starting point of fish health for our programs is
38 to start off with good, healthy stocks. So we
39 maintain brood stock programs, mainstream in
40 particular. We have a genetics program that we've
41 been utilizing genetics and evolution to better
42 improve not only our growth but our health of
43 fish, and so that's our very first step, is to
44 have good, healthy brood stocks. Then produce
45 eggs in a manner that is sanitary, using screening
46 methods for all our brood stocks, disinfection
47 methods for all our eggs, and very stringent

1 biosecurity standards, while we're stripping these
2 eggs in order to ensure that they are not exposed
3 to pathogens. We want to start, in our
4 hatcheries, with a clean, healthy egg.

5 From there, we have -- all the processes we
6 have in place are to maintain a good rearing
7 environment, a good nutritional environment for
8 our fish as they start out. When they reach a
9 certain age, typically around one to three grams,
10 we use - some companies do and some companies
11 don't; it depends a lot on your hatchery - but we
12 use a dip vaccine, which is the first vaccine that
13 they'll use, and this will help them fight off any
14 level of disease. We also take -- we also make
15 great measures to disinfecting the water coming
16 into the hatchery, so even if there's any pathogen
17 that's existing in the water before it reaches the
18 hatchery, that we are removing that.

19 So we're providing them with the best rearing
20 environment, low pathogen exposure, we're
21 providing them with a vaccine in order to fight,
22 if they were exposed to any pathogen. We then
23 take very seriously our biosecurity to ensure
24 we're not moving high risk people, equipment,
25 animals, into and between hatcheries, again,
26 keeping pathogens out, keeping our fish as healthy
27 as we can. We monitor them on a daily basis.
28 When we're looking at mortality curves, we're
29 looking at classifications of mortality, if they
30 occur, the veterinarian and fish health staff
31 investigate those conditions. So we take that as
32 a step-wise process, and that's seven days a week,
33 365 days a year we're undertaking that process.

34 If things occur, and requires a treatment or
35 it requires a process of culling, or there's --
36 there's different options we can use if something
37 does occur. But the importance for us is to have
38 early detection and constant monitoring of the
39 overall fish health.

40 As we go through the freshwater process, that
41 is -- we'll get to a later stage where we
42 vaccinate, where we actually use an injectable
43 vaccine. Every single fish gets injected by a
44 vaccine to protect us against a lot of the endemic
45 pathogens we have in saltwater to ensure that they
46 are well protected before they go to saltwater.

47 They are vaccinated and allowed, for a period

1 of time, for that immune response to kick in,
2 usually around the 400-degree days. It can be
3 several months, in some cases. Once those
4 conditions are made, the fish then are ensure --
5 we test them to ensure that they are in optimum
6 physiological conditions, as far as smoltification
7 is concerned. There is different ways that we can
8 assess fish to ensure that they are healthy and
9 physiologically fit to be transferred from a
10 freshwater facility to a saltwater location.
11 That's an important point, because that period of
12 time, what they call smoltification, is the period
13 of time where the anadromous fish is switching its
14 body from freshwater acclimatized to saltwater.
15 During this period, they have -- their immune
16 system can be compromised and it's a very
17 important period for us to maintain high
18 biosecurity standards and to ensure that they're
19 fully vaccinated before that point.

20 From that position on, we move the fish into
21 saltwater, where the same practices are in place.
22 We're doing daily observation, monitoring, I do
23 monitoring of trends, disease trends,
24 classification trends. We have technicians that
25 are daily looking at fish, cutting open, doing
26 necropsies every day, thousands of fish that we do
27 all year long, looking at fish to look for trends,
28 new emergence, any sort of change as to the
29 normal.

30 If there's an issue, we investigate; if
31 there's a treatment response, then the
32 veterinarian is involved into the appropriate
33 actions that we may take. So we do that level of
34 monitoring.

35 We also do regular screening during that
36 process to ensure that we aren't seeing anything,
37 that we aren't missing anything, and we do that
38 throughout our process and it never stops until
39 the day we harvest.

40 Q Thank you. And to what extent are these measures
41 that you've just outlined required by government
42 regulation?

43 DR. McKENZIE: All the measures that I've described are
44 elements of the Fish Health Management Plan, and
45 so if you look at the template you'll see that
46 they are parts of them. The Fish Health
47 Management Plan goes beyond that and talks about

1 appropriate nutrition, appropriate welfare
2 standards, avoiding predators, which are
3 stressors, and things that we do that further
4 enhance our -- the overall health of our fish.

5 Q Thank you. Dr. Sheppard, I'll turn to you. Under
6 the new federal regime for monitoring and
7 surveillance of fish health, I wonder if you could
8 describe the process in brief. And if you want to
9 make reference to Tab 2 of Canada's binder, which
10 is now Exhibit 1662, you may do so.

11 DR. SHEPPARD: Thank you. That particular document in
12 Tab 2 does outline our activities within the
13 program, and it happened while working for the
14 Province and now working for Fisheries and Oceans,
15 in general, the program involves -- has three
16 major components. One, is the -- using as a
17 cornerstone the health management plan, and our
18 program is designed to monitor the compliance and
19 the implementation of -- that the farms are
20 implementing, that particular health management
21 plan for that particular company. So we have a
22 checklist. Every time we go to a farm site, we
23 will use a checklist to verify that.

24 The second component, of course, is the audit
25 and surveillance of the health aspects. So,
26 again, as outlined on page 1 of the document, it
27 -- we coordinate with the farmers and with the
28 divers to make the carcasses available to the
29 surface, and we will collect samples based on a
30 standard operating procedure and based on
31 recommendations from the OIE, et cetera, to look
32 for causes of death in, most recently, dead fish,
33 which is the -- we feel to be the most likely
34 sample that we can collect, which would reflect
35 what is happening in that population of animals.

36 So in other words, the farms are selected
37 randomly each quarter by an algorithm, and so it
38 -- each farm in British Columbia has equal
39 opportunity to be selected for an audit. But once
40 we -- once that farm is identified to be audited,
41 there's a targeted selection for the fresh
42 carcasses that are most likely to reflect what's
43 happening in that population at that farm.

44 And then the third component is to monitor
45 sea lice abundance within the cages, and again, an
46 independent algorithm and selection, random
47 selection, of active Atlantic salmon farms is used

1 to identify which farms will be monitored. And
2 then, again, a standard operating procedure
3 whereby the farm staff will view 30 fish from
4 three different selected cages and the regulatory
5 government staff will view the other 30 fish, so
6 60 fish in total, the idea being that we can then,
7 as the regulator, be comforted that we are seeing
8 the same things that the farmer is seeing and it's
9 being recorded in an identical way, so we can
10 actually then compare the results and be confident
11 that the farmers are actually looking for the
12 right things and recording it as such.

13 And that's just as part of the audit program.
14 They will conduct their own audit, or abundance
15 counts, regularly, in general, twice each month.

16 Does that answer your question?

17 Q Yes, thank you. Mr. Lunn, can I have Tab 10 of
18 Canada's list, please.

19 Dr. Sheppard, you mentioned an inspection
20 checklist, and I wonder if you can confirm that
21 that is the document on the screen?

22 DR. SHEPPARD: Yes, it is.

23 MR. SPIEGELMAN: Can I mark that as the next exhibit,
24 please.

25 THE REGISTRAR: Exhibit 1665.

26
27 EXHIBIT 1665: Fisheries and Oceans Health
28 Management & Mortality Management Plan (HMP)
29 Inspection
30

31 MR. SPIEGELMAN:

32 Q And you touched on it briefly, but I just wonder
33 if you could tell the Commissioner how this
34 document is used in practice out in the field on
35 your audits.

36 DR. SHEPPARD: Right. Again, to reiterate, at the
37 beginning of each quarter, calendar quarter, 30
38 farms would be selected for audit. So in total,
39 120 farms would be visited for the purpose of
40 health and surveillance, audit and surveillance.
41 And on sea lice component, an additional 40 or 50
42 farms would be selected. So in general, our goal
43 is to, from a fish health perspective, visit the
44 active farms in British Columbia in the
45 neighbourhood of 150 or 160 times each year. And
46 each of those visits, regardless of whether we're
47 going to look at health or lice abundance, we

1 would, at the end of that assessment, our staff
2 will pull out this form - it's been rewritten
3 since my employment with Fisheries and Oceans -
4 and it asks a series of questions that our
5 government staff will interview the farm manager
6 and sit with him or her in their office to pour
7 through records and interview them and do a walk
8 about the farm to answer these questions which are
9 largely geared toward addressing, are they
10 following their health management plan, the
11 fundamentals of it, and more specifically, you'll
12 note at the tail end of each one of these headings
13 is largely a reference to the actual condition of
14 licence that it refers to. For example, there on
15 the screen, biosecurity (s. 14.2(a)vi) of the
16 conditions of licence.

17 So that helps us to guide why we're asking
18 the question, but it also helps the farmer to
19 understand that this is a requirement and this is
20 why these records need to be kept. And we find
21 that this document is not only useful for the
22 regulator, but it's also useful for the farming
23 staff and the managers of the farming companies -
24 and correct me if I'm wrong, Dr. McKenzie -
25 because it's almost like a good cop/bad cop
26 situation in that if we find something at all that
27 happens to be -- highlights an area of improvement
28 or something, then the farming company can go back
29 to the staff and fine-tune that fairly
30 immediately.

31 Q Thank you. Can we have Exhibit 1594, the Federal
32 Conditions of Licence, please, and in particular
33 page 10, pdf 10.

34 Now, section 7, which you see on the screen,
35 sets out the fish health record-keeping
36 requirements imposed on fish farms under the new
37 federal regime. I imagine you're all fairly
38 familiar with these requirements.

39 DR. SHEPPARD: Yes, I am.

40 Q Mr. Swerdfager, I understand you were involved
41 with the preparation of the conditions of licence.
42 Can you please comment on the rationale for
43 requiring so much record-keeping?

44 MR. SWERDFAGER: I was involved in the development of
45 it. The rationale is that, as I mentioned
46 earlier, I believe, and certainly yesterday, we
47 were trying to make the management regime for this

1 industry in this province as transparent as we
2 possibly can. One of the consistent themes in the
3 public consultations that we held in the number of
4 public workshops and in a while series of
5 bilateral meetings with environmental groups and
6 First Nations industry and others, was that it was
7 very difficult to find out information easily
8 about the nature of the industry, how it operates
9 and so on, and so we also -- or, rather, we took
10 that very much on board and wanted to create a
11 scenario under which the industry became far more
12 transparent.

13 We also wanted to eliminate any debate and
14 discussion about this. The conversation, as I
15 describe it with the industry, is pretty much a
16 one-way one on this sort of thing. We are simply
17 saying, "You shall do this," in terms of these
18 records, "You shall report it. You shall report
19 it in the time and the manner that we lay out."
20 It's not a negotiation, the dialogue or discussion
21 and so on, it's just simply that, "This is the
22 rule. Please comply, and if you don't," there's
23 an appropriate response to that. So we are very
24 confident that we will receive all this material
25 in due course and in the appropriate timeframes
26 and format and so on with the goal of making
27 ourselves fully aware of the nature of the
28 operations on the farm, and also putting ourselves
29 in a position to make all that information public.

30 Q Thank you. Dr. Sheppard, it's not just a matter
31 of requiring information and record-keeping for
32 the sake of transparency, this information, I take
33 your evidence, earlier, this information is very
34 useful to you in your audit function as a
35 regulator; is that correct?

36 DR. SHEPPARD: Yes, it is. And I failed to mention
37 that during those health audits or sea lice
38 audits, we have several other field sheets, if you
39 will, where we document much of the same
40 information which comes back with the actual fish
41 tissues and is incorporated into the fish health
42 database and this is largely what myself and a
43 colleague and the field operations veterinarian
44 use in conjunction with all other bits of evidence
45 from the pathologist and the laboratory results to
46 help make our diagnosis.

47 And again, just one last comment is that

1 largely, it's probably no surprise to the
2 veterinarians on the panel here, today, that this
3 is information that would be kept normally,
4 anyway, as part of a veterinary record and farming
5 record, back to your earlier question, your first
6 question, perhaps, which was, it's in everybody's
7 best interests, who's working with these animals,
8 to record it and keep them healthy, and this is
9 largely how it's documented.

10 Q Thank you. Dr. McKenzie, do you agree with Dr.
11 Sheppard's last comments there?

12 DR. MCKENZIE: Yes, I do. You know, the industry's
13 commitment to fish health is, from our
14 perspective, everybody recognizes that healthy
15 fish are productive fish, and so it certainly
16 helps the business, there's no conflict, so
17 everybody agrees.

18 Q Okay. Thank you. I'm going to switch topics a
19 little bit. Dr. Marty, are you aware that
20 Commission Counsel in these proceedings permitted
21 Alexandra Morton to make a confidential report to
22 the CFIA regarding documents she found in the
23 Commission's disclosure database?

24 DR. MARTY: My interpretation of the actual order is a
25 little unclear, but I know that the report did
26 occur.

27 Q And how do you know about that?

28 DR. MARTY: I was informed about it through, I think,
29 reading one of Alexandra Morton's blogs, or
30 possibly from CFIA. I don't remember exactly.

31 Q Okay. And the documents at issue were reports
32 that you authored; is that correct?

33 DR. MARTY: Yes.

34 Q Mr. Lunn, can I have Tab 4 of Canada's binder,
35 please. On the screen is a CFIA record that
36 documents the actions and decisions it took in
37 response to this report. Have any of you seen
38 this document before?

39 DR. MARTY: Yes, I have. It's also at Provincial Tab
40 40.

41 MR. SPIEGELMAN: May I have that as the next exhibit,
42 please.

43 THE REGISTRAR: Exhibit 1666.

44
45 EXHIBIT 1666: Aquatic Animal Health
46 Division, Canadian Food Inspection Agency,
47 Record of Decisions, May 16, 2011

1 MR. SPIEGELMAN:
2 Q Dr. McKenzie, on page 2 of this document - Mr.
3 Lunn, if you could scroll down - under the Follow-
4 Up (Decision #1), it states that you were
5 contacted by Dr. Kim Klotins of the CFIA; is that
6 correct?
7 DR. MCKENZIE: Yes, that's correct.
8 Q And they were inquiring or requesting further
9 information to investigate this report?
10 DR. MCKENZIE: Yes, Dr. Klotins informed me of the
11 situation, that they received a report, and a
12 number of reports were provided to them,
13 histopathology reports that were provided to them.
14 They had gone through them and selected out any
15 reports they didn't feel they had enough
16 information on to make a decision, and that they
17 had informed me that two of those reports were
18 associated with clinical cases I had submitted
19 and, therefore, they requested some follow-up
20 information.
21 Q And you provided them with the information they
22 requested?
23 DR. MCKENZIE: All the information that was requested,
24 and they, yeah, they had no follow-up request.
25 Q Thank you. On page 3 of this document, if we can
26 go to Recommendation #3 (sic), down under
27 Decisions there, it states that, "All cases were
28 evaluated as NO RISK for ISA". Dr. Marty, is that
29 evaluation consistent with the conclusions you
30 reached as to these particular cases in the first
31 case?
32 DR. MARTY: Which number are you pointing out, again?
33 Q Recommendation number --
34 DR. MARTY: Under Decisions?
35 Q No, that's not -- sorry.
36 DR. MARTY: I have item 2 on June 24th, 2011 --
37 Q Oh, that's --
38 DR. MARTY: -- is that the one to which you're
39 referring?
40 Q Yeah, that may be it. Sorry about that.
41 DR. MARTY: And also while I'm talking, I now recall I
42 think I actually heard about this first through an
43 application from Mr. McDade.
44 Q Yeah, June 24th, number 2 there, you're right.
45 DR. MARTY: Yes, I have seen that before.
46 Q And that's consistent with your original
47 interpretation of the results in these cases?

1 DR. MARTY: Yes.

2 Q Then if I can ask, why, in those cases, did you
3 make reference to ISA?

4 DR. MARTY: Part of my role as a pathologist is to
5 provide information to my clients. So often what
6 I'll do, if you actually read the individual
7 reports, is the first sentence or so will say,
8 "Here is my summary. Here's what I think it is.
9 Here's what is probably most common." In the case
10 of these reports, often I would say that viral
11 hemorrhagic septicaemia virus is the most common
12 identified cause of these lesions of concern. But
13 also, I'm also aware of the interest and the
14 potential for ISA to come into B.C. And so in all
15 of these cases I have a standard comment that I
16 use with this lesion that says something like,
17 "Sinusoidal congestion," which is the lesion of
18 concern, "is a classic lesion associated with
19 ISAV." That's just a statement of fact that
20 provides my clients with information. And I also
21 include a clause after that, "but ISAV has not
22 been" -- "never been identified in British
23 Columbia."

24 And I think if we want to have some support
25 for that, there's an application that was put in
26 earlier that showed the number of tests that have
27 been done in British Columbia over the years.
28 Throughout the audit program, we test between 600
29 and 800 fish every year, since 2003, with a highly
30 sensitive and specific PCR test, and those have
31 been all negative. And so that gives me a great
32 deal of confidence that we don't have ISAV in
33 British Columbia.

34 So in several of these cases, it's not
35 routine, when you have that level of confidence,
36 it's not routine to always test for it when it's
37 not known to occur, especially when you always
38 have this active audit program going on. In fact,
39 CFIA actually discourages us to test for
40 international foreign animal diseases. They
41 prefer that they be called.

42 So the fish health, because there weren't
43 requirements from CFIA before January, we sort of
44 have a grandfather-type system. We have this very
45 good audit and surveillance program, and sometimes
46 the fish farmers, themselves, actually just
47 request the tests. The reason they would request

1 the test is to build up a history that we have
2 something that might be considered a suspicious
3 lesion, we've tested for it, month after month,
4 year after year, it's consistently negative. That
5 is very good evidence to international regulatory
6 bodies that we're testing suspicious lesions,
7 they're negative. That gives them a lot of
8 confidence that, indeed, we do not have this virus
9 in British Columbia.

10 Q Thank you. That leads nicely into this
11 opportunity, since we have veterinarians on the
12 stand. I was hoping that we could get a
13 description either in general terms or, in
14 particular, with a disease, about how a diagnosis
15 is arrived at when a dead fish is examined.

16 And Dr. Sheppard, if I can start with you,
17 and then we can let the others chip in.

18 DR. SHEPPARD: It sometimes is a difficult thing to
19 describe. I don't know if it's in the -- I can't
20 recall if it's in the Provincial binder or not,
21 but there's a reference, probably, to the 2009
22 annual report. Within there, at which I am
23 responsible to author each year, but I think maybe
24 on page 10 or something like that, or I'm not
25 exactly sure, but anyway, it does describe sort of
26 the process that we go through for to make the
27 farm level diagnosis.

28 So it begins with, well, first, a distinction
29 between - and we've spoken about it earlier - the
30 distinction between the presence of an organism
31 versus an infection versus what's really a
32 disease, three very different things. And so the
33 veterinarian who needs to make the diagnosis, if
34 you'll allow me, Mr. Commissioner, I make the
35 analogy of we need to compile all of the
36 information collected not only from the farm, the
37 interviews with the staff, the information on the
38 field sheets, all these different tools we use in
39 terms of, if you'll allow me, evidence, right
40 through to what Dr. Marty will present as his
41 diagnosis on a cellular level and a tissue level
42 and an individual fish level, we use all that as
43 tools and we compile all that in an
44 epidemiological approach to look at all the
45 factors to determine not what is the diagnosis in
46 that individual fish, in other words, a lab result
47 or a histopathology result, but what is the

1 diagnosis at the farm level, at the population
2 level, where the audit was conducted. And so we
3 compile that information.

4 So as an example, we may collect 10 fresh
5 carcasses at a farm. One of them may have
6 indications of pathology as described by Dr.
7 Marty. Then my job would be to look at, is that
8 relevant to the main population when the mortality
9 rate is low, there have been no treatments
10 required, no fish health events, the attending
11 veterinarian is very aware of what's going on and
12 is taking no action. So I would tend to not call
13 that a disease-level problem at that farm. I
14 would consider it one fish, one sample, it's a lab
15 result.

16 Does that help to...?

17 Q Does anyone else want to add to that, please?

18 DR. MCKENZIE: Perhaps I could just go to a little more
19 of the farm level, because Mark certainly -- or
20 Dr. Sheppard certainly comes in, in place in an
21 auditory process, and again, he's a little bit on
22 the outside in the sense that he may not have the
23 history or the knowledge of how these fish -- what
24 changes may have occurred or in the recent past.

25 So just fundamentally, as a veterinarian, we
26 go through a process. And every time we look at a
27 problem or a disease diagnosis or a concern, we go
28 through a mental process, and that's fundamental
29 to our training. So we go through a process of we
30 identify history, what history or conditions may
31 have created a greater probability for different
32 outcomes or different causes for the disease. We
33 then look at behaviour. We may look at changes in
34 behaviour, changes in mortality occurrences, or in
35 activities such as where they occupy in the water
36 column, or something along those lines. So those
37 are our first pieces of evidence that we collect
38 as veterinarians on a routine basis.

39 The next is we start to look at the fish,
40 itself. We look at gross examination of
41 individuals, look at the external appearance, are
42 there any -- is there any evidence of particular
43 things we see. With plankton you see gills that
44 are a different colour. We see external lesions.
45 We see darkening of fish. There's a number of
46 things that we bring into play there.

47 Then we add in the necropsy, which is

1 experience of looking at fish, looking at
2 different pathology, findings of different
3 diseases, and what consistent clinical findings we
4 see in those fish. And from our experience, we
5 take those conditions and we, again, add them to
6 our mental picture. So we're making a list of the
7 information that we're collecting.

8 The next step is to collect external
9 information, laboratory information. So maybe
10 those are tissues that go to Dr. Marty. Maybe
11 they're tests that we can look at and microscope
12 at the farm. Maybe there are other options, we do
13 bacterial cultures on the farm. Those are --
14 again, we keep building that list.

15 As a veterinarian, what you do is you create
16 what we call a differential diagnosis. So we
17 create an immediate list of, say, the top 10
18 things that would cause this picture, and as we go
19 through our process of adding in all this
20 information, we start knocking off, what is the
21 most likely. Most likely. In some cases, I feel
22 it's disease A and I send the results to Dr. Marty
23 for a very specific test, and it'll come back,
24 "Yes, that's exactly it." That reaffirms not only
25 my clinical experience, because I've seen this,
26 I've seen that, and it was positive, just like I
27 thought, so you gain knowledge and experience
28 through that process. So it's a bit of a learning
29 process every single time we do a case. But at
30 that point, you have a diagnosis.

31 So you have to put all of those pieces of
32 information together. It's not a single test. If
33 Dr. Marty sends me a negative and I -- that just
34 is -- that's another piece of information that
35 knocks off these three causes and gets me closer
36 to the final diagnosis in the field, so that I can
37 manage that particular situation.

38 So that's kind of the process we go -- mental
39 process we go through for diagnosis.

40 Q So I if I understand your evidence, then, a given
41 symptom, if it was found on a fish in isolation, a
42 symptom isn't indicative of any particular disease
43 or health problem, there may be symptoms that
44 would give rise to a whole list of, on that
45 differential diagnosis, and further information
46 and experience would be required to narrow it down
47 and come to a diagnosis; is that --

1 DR. McKENZIE: Certainly with time you develop an
2 experience. Unfortunately, with fish, a lot of
3 clinical signs are consistent among many diseases.
4 They're not what we call pathognomonic. You don't
5 see it and, "Oh, that's it." But you do see
6 trends, and over years of experience, and I've cut
7 open thousands of fish, and you've gone through --
8 worked through many cases, you learn that
9 knowledge. You gain that experience. And you get
10 to a point where you have a really good -- your
11 differential diagnosis gets far more refined with
12 time and expertise filling in the gaps for you.
13 So yes, with times you gain that.

14 MR. SPIEGELMAN: Thank you. I have, on Canada's list
15 of documents, from Tabs 11 through 16, Canada was
16 requested, on June 3rd, I believe, by the
17 Aquaculture Coalition, for documents related to
18 egg import and fish health testing of imported
19 Atlantic salmon eggs. And I wanted to, in the
20 interest of full transparency, try and get those
21 into the record. We don't have witnesses being
22 called that will be able to firsthand identify
23 them, but I wonder if we could, first of all, ask
24 the panel:

25 Q Are any of you familiar enough with the actual
26 records for egg imports that you could identify
27 them and lay a proper foundation for documents?
28 And perhaps, Mr. Lunn, if we could pull up Tab 15
29 just as an example. Is anyone on the panel
30 familiar with these sorts of documents?

31 DR. McKENZIE: This is the FHPR Fish Health Certificate
32 required for importation, and it's a form that has
33 to be filled out by the authority from the
34 exporting country. So this has been filled out
35 and signed by the chief veterinary officer in
36 Iceland, for an importation, and he's certifying
37 that these fish have been tested for these
38 diseases and found to be free.

39 Q And the list of diseases that are on there, that's
40 a pretty standard list, I understand?

41 DR. McKENZIE: That is the specific list that comes out
42 of the **Fish Health Protection Regulations**.

43 Q Right. And I don't see ISA on that list.

44 DR. McKENZIE: There is also a provision under the **Fish**
45 **Health Protection Regulations** where they stipulate
46 "any filterable agent," so there's sort of a
47 catchall phrase for any unknown disease. But that

1 is the -- those are the criteria that are
2 currently in regulation.

3 Q And would ISA be caught under the other filterable
4 replicating agent?

5 DR. McKENZIE: Yes, it would. A number of these
6 conditions, depending on the method used, they'll
7 use cell culture for IHN, VHS, and the methodology
8 that's used, if there's other viruses there,
9 you're likely to pick them up.

10 DR. SHEPPARD: If I may, the particular reference to
11 what Dr. McKenzie's talking about, I think, is on
12 page 7 of the Manual of Compliance, the official
13 protection regulations, where it does refer to
14 filterable agents of the importing --

15 Q Thank you. I believe that manual of compliance is
16 in evidence. I don't have the exhibit number
17 close at hand. But in the interests of time - I
18 understand I have less than one minute remaining -
19 so I wonder if I could get Tab 11, or the records
20 from the year 2000, and they go forward through
21 Tab 16, and I thought I could just enter them as a
22 series of exhibits and then, so --

23 THE REGISTRAR: Mr. Spiegelman, perhaps we can enter
24 Tab 11 as Exhibit 1667; Tab 12 as 1667A; Tab 13 as
25 1667B; Tab 14, 1667C; Tab 15, 1667D; and Tab 16,
26 1667E.

27
28 EXHIBIT 1667: Fisheries and Oceans Canada
29 Fish Health Certificate for Cascade Animal
30 Farms, May 28, 1999

31
32 EXHIBIT 1667A: Fisheries and Oceans Canada
33 Fish Health Certificate for Cascade Animal
34 Farms, December 7, 2001

35
36 EXHIBIT 1667B: Government of Canada,
37 Fisheries and Oceans fax to John C. Davis,
38 From Laura Richards, Subject: Request to
39 import Atlantic salmon eggs from Iceland
40 (Decision sought), dated October 3, 2003

41
42 EXHIBIT 1667C: Fish Health Service Report
43 for Mainstream Canada, dated March 15, 2005

44
45 EXHIBIT 1667D: Fisheries and Oceans FHPR
46 Fish Health Certificate for Stofnfiskur Ltd.,
47 dated July 31, 2007

1 EXHIBIT 1667E: Fisheries and Oceans FHPR
2 Fish Health Certificate for Stofnfiskur Ltd.,
3 dated May 16, 2008
4

5 MR. SPIEGELMAN: Thank you. Those are my questions.

6 MR. MARTLAND: Thank you. Mr. Commissioner, I have
7 counsel for the Province at 35 minutes. I think
8 that'll take us to the midday break, thank you.

9 MS. CALLAN: Mr. Commissioner, Callan, C-a-l-l-a-n,
10 initials T.E., appearing on behalf of Her Majesty
11 the Queen in Right of the Province of British
12 Columbia.
13

14 CROSS-EXAMINATION BY MS. CALLAN:
15

16 Q Dr. Sheppard, I understand that the Provincial
17 Fish Health Auditing and Surveillance Program has
18 been reviewed by the Centre for Coastal Health.
19 Is Provincial Tab 39 the executive summary of the
20 review, and if so, what are the findings of the
21 review?

22 DR. SHEPPARD: I'm sorry, counsel, I'm afraid -- oh,
23 thank you. I didn't have that binder in front of
24 me. Yes, that is the external review by the
25 Centre for Coastal Health, Dr. Jane Parmley, who
26 is an epidemiologist and veterinarian. That
27 independent review was commissioned by my
28 predecessor in 2006. I didn't begin with the
29 Province until 2007. But yes, this executive
30 summary would contain the key points of their
31 criticisms.

32 MS. CALLAN: Could we mark that as the next exhibit.

33 DR. SHEPPARD: Specific --

34 THE REGISTRAR: Exhibit 1668.
35

36 EXHIBIT 1668: Centre for Coastal Health, A
37 Review of the British Columbia Ministry of
38 Agriculture and Land's Fish Health Audit and
39 Surveillance Program, by Jane Parmley,
40 October 2006
41

42 MS. CALLAN:

43 Q Dr. Sheppard, continue.

44 DR. SHEPPARD: Did you have a specific question about
45 anything in there?

46 Q What were the findings of the review?

47 DR. SHEPPARD: Probably most salient, if it's possible

1 to scroll down to the third page or the end of the
2 executive summary, yeah, page 2 of the executive
3 summary, it's a paragraph below the table. So I'm
4 sorry, page 3 of this particular document. Below
5 the table there, I think there is an indication
6 here that -- there was some reference in this
7 area, anyway, to the -- that the audit and
8 surveillance program was -- exceeds the standards
9 of an audit and surveillance program as far as --
10 Q Perhaps I could assist. Is it the second
11 paragraph of page 3?

12 DR. SHEPPARD: Oh yes, I'm sorry, it's above -- yes,
13 that's true. Probably the second sentence that
14 starts, "The data collected is part of the BC Fish
15 Health Audit and Surveillance Program," that was
16 quite encouraging to receive.

17 MS. CALLAN: I note that Dr. McKenzie referred to
18 Provincial Tab 18 before the break. That's the
19 Code of Ethics, and I was just going to mark it as
20 the next exhibit.

21 THE REGISTRAR: 1669.

22
23 EXHIBIT 1669: British Columbia Veterinary
24 Medical Association Bylaws - Appendix A Code
25 of Ethics
26

27 MS. CALLAN:

28 Q Now, I understand before you left the employ of
29 the Province, that your office produced the annual
30 reports for the Fish Health Program, Dr. Sheppard,
31 and that the 2009 reports have been marked. Would
32 you agree that Provincial Tabs 6, 7, 9, 11 and 12
33 comprise the annual reports from 2003 to 2008?

34 DR. SHEPPARD: I agree.

35 MS. CALLAN: If those could be marked sequentially as
36 the next exhibits.

37 THE REGISTRAR: Tab 6 will be marked as 1670; Tab 7
38 will be 1671; Tab 9 will be 1672; Tab 11 will be
39 1673; Tab 12 will be 1674.

40
41 EXHIBIT 1670: Fish Health Program 2003 -
42 2005
43

44 EXHIBIT 1671: Fish Health Program 2006,
45 Ministry of Agriculture and Lands
46

47 EXHIBIT 1672: Fish Health Program 2007,

1 Ministry of Agriculture and Lands
2

3 EXHIBIT 1673: Ministry of Agriculture and
4 Lands, Animal Health Branch - Fish Health
5 2008, Fish Health Program Annual Report
6

7 EXHIBIT 1674: Ministry of Agriculture and
8 Lands, Animal Health Branch - Fish Health
9 2008, Fish Health Program Supplemental
10 Appendices to the Annual Report
11

12 MS. CALLAN:

13 Q Dr. Sheppard, besides fish health inspections,
14 were there any other inspections that were
15 conducted by your office or other offices in
16 Courtenay with respect to fish farms in the
17 province? And if so, what were they and how many
18 occurred per year?

19 DR. SHEPPARD: Yes, as I said in my tenure with the
20 Province, Fish Health conducted upwards of 150 or
21 160 individual inspections of the farms, but there
22 were other members of the Provincial Government
23 that did attend farms on a fairly regular basis.
24 Those would be the fisheries inspectors. I think
25 their goal was to visit every farm at least once
26 each year. And the Minister of Environment staff
27 also visited the farms. I know Fisheries and
28 Oceans staff were also commonly seen on the farm
29 sites as well. So yeah, the Fish Health component
30 and its staff members were probably most -- most
31 frequented the farms.

32 Q Now, this question's for either Dr. Sheppard or
33 Dr. Marty, depending on who feels best to answer
34 the question. On Monday, Mr. McDade, on behalf of
35 the Aquaculture Coalition, questioned Dr. Korman
36 regarding whether the audit data aligned with the
37 salmon farmers' data. Are the two databases
38 expected to measure the same issues?

39 DR. SHEPPARD: Not specifically, in the sense that our
40 audits are, if you will, snapshots in time,
41 whereas the information collected and submitted by
42 the industry is much more voluminous and much more
43 frequent, and the veterinarians and the Fish
44 Health Management staff for those corporations
45 were -- had their finger on the pulse most of the
46 time. Our goal, and it probably is reflected best
47 in the 2009 Fish Health report - sorry, I don't

1 know what the page number is - but there's a
2 figure, I think figure 4A or 4B or 4, which would
3 reflect the findings -- the audit findings of
4 things found inside the carcasses that we
5 collected, whereas figure 15, I think, later on in
6 the document, around page 37, maybe, reflects the
7 Fish Health events reported by the industry.

8 So when you compare those two pie graphs, it
9 would, in answer to your question, counsel, is
10 that we would find similar causes of, or diagnoses
11 at the farm level, Fish Health events versus what
12 we found at the audit level, so that the numbers
13 may vary, but certainly the categories of findings
14 were -- almost overlapped completely in every
15 case. My recollection is that only one time that
16 the audit information did not find something that
17 the industry had actually reported. But again,
18 it's a snapshot in time. We're not looking at the
19 same carcasses on the same day.

20 MS. CALLAN: If you could turn to Exhibit 1564, Mr.
21 Lunn, and specifically page 19. Actually, page 19
22 of the document as it stated, so...

23 MR. LUNN: It's the same on ringtail as on paper.

24 MS. CALLAN: I think the problem is that this is a
25 supplement and I'm actually looking to the main
26 report.

27 MR. LUNN: I see.

28 MS. CALLAN: Sorry, it's Exhibit 1560, and page 19.

29 Q Is that the graph you're referring to?

30 DR. SHEPPARD: Yes, it is. This is a reflection of the
31 diagnoses made by the veterinarians at a farm
32 level, based on our collection of fresh carcasses
33 during an audit for the entire year of 2009.

34 Q Thank you. Dr. Marty, on Monday, an issue arose
35 where Dr. Korman said only two of the seven
36 instances of IHN were identified. Can you explain
37 where Dr. Korman may have erred in his analysis,
38 using Exhibit 1549 BCP002850 as a reference?

39 DR. MARTY: Will you be able to bring that up?

40 MR. LUNN: I'm just working on it.

41 DR. MARTY: Okay. I think I can explain the
42 difference, if it's the document I think it is.
43 This is a very complex database, and the transfer
44 of what was on the database to Dr. Korman missed
45 something.

46 In all of our samples, we first do the
47 preliminary chain reaction, or PCR test, for

1 something like IHNV. If it's positive, then we
2 bring out tissues from the freezer and inoculate
3 them onto cell culture and attempt to culture it.
4 So the tab that Dr. Korman used was the virology
5 tab number 4. That was the virus culture results.
6 Because it takes a day for the samples to get to
7 us, often the virus culture results are negative
8 when, in fact, there still is virus there. So we
9 actually depend on the PCR results more than we do
10 on the virus culture results.

11 So if you go to the next tab, which is viral
12 virus, and then go up to the top, the column N,
13 Nancy, poolPCR, that's actually the column that we
14 use for most of our reports. That's the basis
15 that we use as the PCR test. And so this has
16 several examples of, even though it's a negative
17 one here, that's actually a positive PCR result.
18 So this, I think, would equal -- probably equalize
19 the cases that Dr. Korman was getting some
20 negative results in one sense but seemed like we
21 were missing them. I think if we put these
22 together his numbers would come out a little
23 more --

24 DR. SHEPPARD: If I may assist, I have reviewed this.
25 And Mr. Lunn, if you're able to go to Tab 15 or
26 16, where it says Farm Diagnosis. There it is at
27 18. And the top of the page, if you begin there,
28 if you start looking at the farm diagnosis column
29 F, there will be, I think it refers specifically
30 to seven cases of IHN between 2002 and 2003. So
31 those are the seven cases he looked at. And then,
32 as Dr. Marty pointed out, if you're able to change
33 back to 4, Tab 4, Mr. Lunn, at the top of that
34 page you'll notice, what we're looking for,
35 specifically, is in column number J, or letter J.
36 You'll see we're looking for -- there are two
37 trues in that column in the top little bit there.
38 Those are the two positive viral isolations on
39 cell culture. This is where -- and I take full
40 responsibility for misdirecting Dr. Korman,
41 because he did ask me about this and I -- it's a
42 complicated set of data, the way it's formatted.
43 But if you, as Dr. Marty said, on Tab 5, those
44 negative ones better reflect the pools of tissue
45 that were analyzed using molecular diagnostics,
46 and there you would be able to count up to seven
47 cases that were identified and diagnosed at a farm

1 level.

2 MS. CALLAN:

3 Q So essentially, then, if you had used the viro
4 virus tab instead of the virology tab, he would
5 have come up with consistent results?

6 DR. SHEPPARD: Yes, and a very understandable mistake
7 or -- by Dr. Korman, because it is a complicated
8 set of data to analyze.

9 Q Now, Mr. McDade also referred to a DFO document
10 that identified that 60 live fish were needed to
11 be sampled to show us 95 percent confidence rate
12 the disease wasn't present. Now, the Province
13 takes five fresh silvers for samples in its
14 audits. Can you describe the difference between
15 the sampling measurements and whether or not this
16 was effective? And this can be to either Dr.
17 Marty or Dr. Sheppard, depending on your
18 preferences.

19 DR. MARTY: I guess I'll go on that one. The number of
20 fish that you take depends on the goal that you
21 have for your study. For example, Dr. McKenzie
22 talked about import regulations. Whenever the
23 Animal Health Centre did diagnostics for imports,
24 for many of the veterinarians, we always ran 150.
25 I've always assumed that that was the standard for
26 OIE, because our goal in that situation was to
27 certify this specific lot of fish being free from
28 disease. The audit program is quite different.
29 The audit program, the goal of that program is to
30 audit the fish health events that are reported by
31 industry. So we are not attempting to certify any
32 individual farm free from disease.

33 Now, because we do five fish today and five
34 fish tomorrow, and then over the course of a
35 quarter we get about 150 fish a quarter, our
36 epidemiologists tell us that we can actually add
37 those up, and because it's a randomized sample,
38 we're sampling fish that are the most likely to be
39 diseased, so at the end of the quarter we have 150
40 fish, if they are all free of, say, ISA, we can
41 then state with a level of confidence that we have
42 95 percent confidence that the prevalence of ISAV
43 in our population, our British Columbia fish, is
44 less than two percent.

45 So even though the individual farm is not
46 certified free, we have a lot of information from
47 the industry as a whole in the province, and that

1 adds up year after year after year, so we're now
2 at the point where we have over 5,000 tests for
3 ISAV, all are negative, and that gives us an
4 extremely high level of confidence that our
5 industry is free from ISAV.

6 Q Dr. McKenzie?

7 DR. MCKENZIE: I'd just like to add to that a little
8 bit from my international experience. The 60 fish
9 discussion is often when you're sampling a random
10 sample in order to identify or find something in a
11 population. The strategy that the Province
12 utilizes is a bias sample, as Dr. Marty suggested.
13 We are targeting, or the program targets silver
14 fish, which have a -- that have died. We're not
15 sampling live fish that are healthy. So we
16 actually are biasing our sample to find disease
17 which, again, increases our confidence.

18 In addition to that, when you're evaluating
19 other countries for their import controls and the
20 disease control mechanisms they have in place, you
21 have to look at the whole picture of the disease
22 mechanism that you have in place. So the
23 Provincial program does not stand alone as a
24 sampling program. It is an additive program. It
25 is essentially a quality control system for the
26 day to day farming observation and surveillance
27 that occurs every day on farms. So every day
28 we're looking at clinical signs of disease. We're
29 doing tests, we're doing evaluations. The numbers
30 and the support of information the Provincial
31 program has adds onto that confidence by selecting
32 onto a bias sample where your mortality in your
33 silver fish are going to have a higher percentage
34 of disease than your healthy fish swimming in the
35 population. You further strengthen your numbers.

36 So by adding all these mechanisms together,
37 you end up with a very robust system, and this is
38 why evaluations of the program have been, as Dr.
39 Parmley mentioned in the assessment of the
40 program, meet and exceed international standards,
41 because there's so many layers of confidence.

42 Q Now, Dr. Marty, before the transfer the Province
43 monitored for viruses, can you outline how they
44 monitored for viruses and roughly what number of
45 samples were being taken per year?

46 DR. MARTY: Exhibit Number 1471, if that could be
47 brought up, that will give us a summary that I

1 mentioned earlier. With the Fish Health Audit and
2 Surveillance Program, we routinely test all the
3 fish that are sampled. Sometimes we'll pool fish,
4 up to five fish per pool, for the test, and that's
5 an international standard. We have some diseases
6 that are what we call endemic in British Columbia.
7 They occur in wild fish and occasionally they can
8 get into our farm fish. The one we test for is
9 viral haemorrhagic septicaemia virus. That occurs
10 every year in a few farms. Another is infectious
11 hematopoietic necrosis virus. We've not had a
12 case of that since 2003. And that's very
13 devastating to the Atlantic salmon. The previous
14 virus I talked about may kill a few salmon, but it
15 tends to be what we call self-limiting; it just
16 goes away after a while.

17 Then we have exotic diseases that we don't
18 have in British Columbia. One of them is
19 infectious pancreatic necrosis virus, and all
20 tests have been negative for that, and they're
21 listed here. The other virus is infectious salmon
22 anaemia virus. It has had the most interest in
23 these proceedings. And again, all these tests
24 were negative for that.

25 Finally, we have a primitive bacteria that
26 has to live inside cells, and that's called
27 *Piscirickettsia salmonis*. This is another one
28 that we occasionally see in our fish in British
29 Columbia. There's a variety that's very severe in
30 Chile, but we do not have that variety in British
31 Columbia, but we do test for it, and our test
32 would pick up the Chilean strain if it were to
33 appear in our samples. So that's the main reason
34 we have that, because there are a more significant
35 strain of this organism elsewhere, and we do
36 occasionally get some positives for that organism.

37 DR. SHEPPARD: Ms. Callan, if I may add, on the note of
38 -- on the precautionary note, the program, the
39 Audit and Surveillance Program is very
40 precautionary in following the requirements and
41 expectations of the international community, the
42 World Organization for Animal Health, the OIE. In
43 their manual of disease detection tests, I think
44 it may be chapter 1.14, that chapter speaks to
45 freedom of infection, and it's accepted by the
46 World Organization and leading experts,
47 virologists, veterinarians, be they federal or

1 provincial or private, there's agreement that
2 British Columbia has freedom of infection of a
3 number of these exotic pathogens that Dr. Marty
4 just mentioned.

5 So the program is designed with a confidence
6 of 95 percent at a two percent prevalence. I
7 don't want to get into the statistics, because I'm
8 not a statistician. But it's designed every
9 quarter to test for this in a meaningful manner to
10 continue to support that we have freedom of those
11 infections.

12 Now, over time, of course, if you start
13 looking at historical information, that
14 confidence, intuitively, you can tell that
15 confidence level rises from 95 percent upward,
16 because each quarter we continue to not find it.
17 In addition, the two percent prevalence
18 intuitively can fall, get more toward one percent
19 or even less than one percent because, again, each
20 quarter we continue to not find it. So this is
21 why, I think, the independent epidemiological
22 studies have supported that the program currently
23 as it's designed should provide the public
24 confidence and the international confidence for
25 trade out of B.C. and out of Canada, that we have
26 freedom of infections.

27 Q And Dr. Marty, there's reference in some of your
28 reports to sinusoidal congestion. Can you
29 describe what this is and if you would consider
30 the presence of sinusoidal congestion of
31 haemorrhaging, or both, enough to found a
32 diagnosis of infection salmon anaemia?

33 DR. MARTY: Sinusoids are the special name for
34 capillaries in the liver. Congestion is just
35 expansion of the size of the capillaries by blood
36 cells. So sinusoidal congestion is just
37 engorgement of the capillaries in the liver.
38 Sometimes this can appear as distinct, round, foci
39 that can actually be seen by the fish health
40 technicians in the field. So they submit that to
41 me, I make a diagnosis, and I have a standard
42 comment that I use, that I discussed before. And
43 based on the information that is shown here on
44 this exhibit, I can be very confident that even
45 though in Europe this might be a concern for ISAV,
46 I can be very confident in British Columbia that
47 ISAV is not the cause.

1 Q Now, if we turn to Exhibit 1540, page 24 to 25,
2 Dr. Dill says, and I'll just add "ISA," and then
3 the quote is:

4
5 ...is an important viral disease of farmed
6 Atlantic salmon in some parts of the world
7 (Europe and Chile in particular). No records
8 of it can be found in the BCMAL or BCSFA
9 records, and according to M. Sheppard
10 (personal comment) there have been "no
11 suspect cases of ISA in BC since sampling
12 began in 2003". However, in his diagnostic
13 reports on dead fish collected from salmon
14 farms Dr. Gary Marty (fish pathologist with
15 BCMAL) reports "classic symptoms of ISA" -

16
17 -- and he references BCP002864, and then goes on
18 to say:

19
20 - which according to the World Organization
21 of Animal Health (OIE) should make any one of
22 these what they call a 'suspect case'. These
23 "classic symptoms", according to the BCMAL
24 document, are sinusoidal congestion of the
25 liver and interstitial hemorrhage/congestion
26 of the kidney.

27
28 Can you respond to this statement and provide me
29 your opinion on whether Dr. Dill has appropriately
30 quoted you and whether or not the documents he
31 refers to are actually suspect cases of ISA?

32 DR. MARTY: Well, the first sentence, he describes ISA
33 is an important viral disease of farmed Atlantic
34 salmon in some parts of the world, and I do agree
35 with that. Regarding the quote "classic symptoms"
36 of ISA, I looked through my reports and I don't
37 actually use that terminology. I think I use
38 something like "a classic lesion" of ISA, and
39 that's just a somewhat wording difference.

40 I think Provincial Tab 31 has an affidavit
41 that I produced that described quite a bit of how
42 we approach this sinusoidal congestion issue, and
43 on page 55 of that document, this is the, I
44 believe, OIE manual that describes infectious
45 salmon anaemia, so this would be the document,
46 page 55, I thought, but it may be different on
47 ringtail than that. It's titled, Infectious

1 Salmon Anaemia. So if you just go down on -- page
2 down, page down, I think it's a page down from
3 there, but I'm just going to quote from the
4 clinical methods in gross pathology for ISAV, they
5 say, "No lesions are pathognomonic to ISA". And
6 so what that means, as Dr. McKenzie referred to,
7 is there isn't a single thing, if you see it,
8 you're sure it's ISAV. So that's one important
9 point.

10 If we continue in that same document - okay,
11 that looks like it - that would be page 226 on the
12 actual document that you can see in the bottom
13 left-hand corner there, and item 4.2 Clinical
14 Methods, Gross pathology, and you can see that
15 first paragraph, second line, "No lesions are
16 pathognomonic to ISA". So in the same document,
17 if you just go to page 232 of that document, so, I
18 think, six pages, and down at the bottom of the
19 page, under Definition of a suspect case, and item
20 i) so it mentions:

21
22 Clinical signs consistent with ISA or
23 pathological changes consistent with ISA...

24
25 So because there's no specific lesion that's
26 pathognomonic for ISA, you actually need a suite
27 of lesions, or suite of changes. You need more
28 than one. So a single finding of sinusoidal
29 congestion is not sufficient.

30 The other point that's important here is I
31 just have a limited amount of information on the
32 farms. So I provide -- I am part of a diagnostic
33 team that helps diagnose animal health in the
34 province, so I'm providing my results to the
35 veterinarians, and they use their expertise, as
36 Dr. McKenzie described, to look at mortality
37 patterns and other things that he has described,
38 to determine is this, indeed, what we call
39 reportable suspicion of ISA.

40 Reportable suspicion of ISA is different than
41 just as may be an outlier differential diagnosis.
42 We want to report to CFIA things that are actually
43 of concern from our perspective as a pathologist
44 or as a clinician we think might be there. To
45 report every time the fish had sinusoidal
46 congestion would not be helpful for the
47 international regulatory bodies. That's why we're

1 experts. We're supposed to look at the whole
2 picture and come to a decision whether it needs to
3 be reported. And because, as Dr. McKenzie
4 mentioned, many fish diseases have the same
5 lesion, we're actually in the process, now, of
6 trying to cleanly define what it is that we see
7 that we need now to report to CFIA.

8 Fortunately, all our audit cases, because
9 they always have a PCR test and it's always
10 negative, the PCR test is what they would use to
11 rule it out. So when we have a PCR test and it's
12 negative, and even if I see some suspicious signs,
13 then I wouldn't report on that basis. Dr.
14 Sheppard may receive my results and have some
15 other information to suggest that there's a
16 problem with our PCR test. That's part of the
17 back and forth that we have as professionals and
18 part of the way that we gain confidence in each
19 other. If he has questions, he can ask me, or he
20 may just report it directly to CFIA.

21 Q Now, earlier in these proceedings, Ms. Morton has
22 referred to 111 reported incidences of ISA. Is
23 this the same issue?

24 DR. MARTY: I think she might have even reported a few
25 more instances of ISA.

26 MR. McDADE: Excuse me just for a second. I don't
27 think Ms. Morton has testified before this
28 proceeding yet.

29 MS. CALLAN: Well, she has provided some documentation
30 which is in an exhibit as QQ.

31 MR. McDADE: Well, if we have that up on the screen, is
32 that signs of ISA or symptoms of ISA compared to
33 ISA? The way you put the question was a little
34 too general, I think.

35 MS. CALLAN: Okay. Well, she has reported 111-plus
36 reported classic lesions associated with ISA.

37 MR. McDADE: Yes, that's far better.

38 MS. CALLAN: Okay.

39 DR. MARTY: So that would be Provincial Tab 2?

40 MS. CALLAN: If we can mark Dr. Marty's affidavit as
41 the next exhibit.

42 THE REGISTRAR: 1675.

43
44 EXHIBIT 1675: Affidavit #2 of Dr. Gary
45 Marty, affirmed April 26, 2011
46

47 MS. CALLAN:

1 Q Now, Provincial Tab 15 is the document from the
2 OIE in a much more easy to find format; would you
3 agree with that?

4 DR. MARTY: Yes, that's the same as in my affidavit.

5 MS. CALLAN: If we can mark that as the next exhibit,
6 please.

7 THE REGISTRAR: 1676.

8

9 EXHIBIT 1676: Chapter 2.3.5 infectious
10 Salmon Anaemia

11

12 MS. CALLAN:

13 Q We're just switching topics, now, to marine
14 anaemia. Can you describe your understanding of
15 marine anaemia or plasmacytoid leukemia?

16 DR. MARTY: Marine anaemia I see as a clinic syndrome,
17 and so it's not something that I would diagnose.

18 And maybe Dr. Sheppard might just give a little
19 idea of what the clinical syndrome is, what
20 science he sees when he's out on the field.

21 DR. SHEPPARD: I would agree with Dr. Marty in that the
22 -- and as we heard Dr. Kent and Dr. Stephen
23 testify last week, that it's debatable what that
24 syndrome is and what causes it. The term "marine
25 anaemia" is just simply a morphological
26 description of a fish in the water that doesn't
27 have enough blood cells to circulate blood. There
28 are many, many causes for that. The specific
29 lesion is plasmacytoid leukemia, which is an
30 amplification of white blood cells that seems to
31 be out of control. So in that sense, it's not
32 immunosuppressive. It could be debated that it's
33 actually an excess of immunostimulation. And I
34 think that was part of the thesis from Dr. Stephen
35 that, "what is disease," that it may just be an
36 indication of inflammation.

37 So I could speak to this topic somewhat,
38 because I was one of the early veterinarians. The
39 last 20 years has gone by quickly, but I was at
40 the farms with Dr. Kent and Dr. Stephen at the
41 time that these papers were written back in 1990
42 and '93, for example, and the clinical signs that
43 we would see in affected Chinook salmon are very
44 obvious. So these fish are grossly -- the gross
45 pathology is very evident. Some of the signs
46 overlap with other indigenous infection, such as
47 bacterial kidney disease, or the *Rickettsia*, the

1 *Piscirickettsia* infection. And so there are some
2 field tests between the gross pathology, the
3 experience and the histology or the history of the
4 farm. There are some quick and easy tests that
5 would help to determine whether it was a bacterial
6 kidney disease that was causing these lesions or
7 whether it was the *Rickettsia* causing these
8 diseases. And then often that those lesions would
9 be collected and sent to a pathologist to confirm
10 that.

11 So in short, the diagnosis of plasmacytoid
12 leukemia is really quite easy to determine at the
13 farm and the gross clinical examination.

14 Q Okay.

15 DR. MARTY: And the other point is that if you have a
16 diagnosis of bacterial kidney disease, or
17 *Piscirickettsia*, then you do not give a diagnosis
18 of marine anaemia. Those are not the same thing.

19 DR. SHEPPARD: That's correct.

20 Q Now, Ms. Morton has prepared some graphs outlining
21 marine anaemia in Chinook and Atlantic salmon, at
22 Provincial Tab 2. What are your thoughts on the
23 graph that was provided by Ms. Morton and,
24 specifically, what are your thoughts on ISH
25 symptoms being equated with marine anaemia
26 symptoms in Atlantic and Chinook salmon?

27 DR. MARTY: To answer that question, Mr. Lunn, could
28 you bring up Exhibit 1549.

29 MS. CALLAN: And that would be BCP002864.

30 DR. MARTY: In the interest of time, I've brought up
31 the database that was discussed on Monday in quite
32 detail, and what I've asked Mr. Lunn to do is, as
33 a pathologist, I'm the one who created this entire
34 database, filled in every one of those numbers.
35 And so after a while I kind of get a feel for if I
36 see one thing there's often something else
37 associated with it. These aren't independent
38 things over time.

39 So what we're going to do here is I'm going
40 to have a hypothesis. As Dr. Sheppard mentioned,
41 this ISH is just increase in blood-forming cells
42 in the kidney. And I'm going to have a hypothesis
43 that I think these might be related to bacterial
44 kidney disease, or *Piscirickettsia*. So I've asked
45 Mr. Lunn to go ahead and collapse the columns that
46 aren't necessary for those diagnoses, and we're
47 just putting the focus, here, on the RS category.

1 So if you could just click through those, and it
2 is the -- and I think he's just going to click
3 "undo" or "redo" unless they disappear. Okay.
4 MR. LUNN: I'm trying to do that. It looks like all of
5 our changes have disappeared.
6 DR. MARTY: All right. So Plan B, what I want you to
7 do is go to the -- go home --
8 MS. CALLAN: Maybe if I could interrupt you. Could I
9 just get the highlights, since I'm starting to run
10 out of time?
11 THE COMMISSIONER: Ms. Callan, I think --
12 DR. MARTY: Okay.
13 THE COMMISSIONER: May I just interrupt? I apologize
14 to you for that. I'm going to take the break now,
15 and if Mr. Lunn can address this issue, it might
16 be more helpful for me.
17 MS. CALLAN: Okay.
18 THE COMMISSIONER: Thank you.
19 THE REGISTRAR: The hearing is now adjourned until 2:00
20 p.m.

21
22 (PROCEEDINGS ADJOURNED FOR NOON RECESS)
23 (PROCEEDINGS RECONVENED)

24
25 THE REGISTRAR: The hearing is now resumed.
26 MR. MARTLAND: Mr. Commissioner, I've simply moved to a
27 different mike so that Ms. Callan has the same
28 one. She's got a further two minutes of questions
29 to conclude, and then we'll move immediately to
30 Mr. Blair for the Salmon Farmers Association with
31 30 minutes. Thank you.

32
33 CROSS-EXAMINATION BY MS. CALLAN, continuing:

34
35 Q Dr. Marty, if we could turn back to Exhibit 1549
36 and BCP002864 for your answer on whether or not
37 ISH symptoms are -- what your thoughts are on ISH
38 symptoms being addressed in marine anaemia.
39 DR. MARTY: Okay. What I've done is ask Mr. Lunn to go
40 ahead and just collapse the spreadsheet and sort
41 the ISH scores from most severe to least severe.
42 And what he's done here is highlighted, there are
43 actually no severe cases, a score of 3, but he has
44 23 cases with a score of 2. Now, if you go down
45 the "Cause of Death" list on all of these, you'll
46 see that there is, for example, "HRS", Heart
47 *Renibacterium salmoninarum* or bacterial kidney

1 disease, and then there's just -- you go down the
2 row and there's several "RS"s. There's one "BHM"
3 on line 37, but if you look over at the "KRS"
4 line, there's actually a severe kidney, this is
5 bacterial disease.

6 Keep going down further, every one has a
7 cause of death that's either "RS", there are a few
8 that are "PS", which is *Piscirickettsia salmonis*.
9 Dr. Sheppard mentioned that those are two causes
10 that can cause ISH. So in this case we have a
11 cause of death for every one of these fish, and so
12 we don't need to use the diagnosis of marine
13 anaemia at all, and in fact these are not marine
14 anaemia like, that would not be an appropriate way
15 to designate them because we have another cause of
16 death in stead of marine anaemia.

17 Q And my last question is if you could turn to Tab
18 45 of the Province's book of documents. Is this
19 an email that you wrote to Dr. Miller?

20 DR. MARTY: Yes.

21 MS. CALLAN: If that could be marked as the next
22 exhibit.

23 THE REGISTRAR: Exhibit 1677.

24
25 EXHIBIT 1677: Email from Gary Marty to
26 Kristi Miller-Saunders Re: FINAL "unblinded"
27 FR sockeye histopathology results 2011-2111,
28 June 27, 2011
29

30 MS. CALLAN: And that's all the time I have, so those
31 are my questions. Actually, one point. If Mr.
32 Lunn could save the amended Excel spreadsheet as a
33 new document, that might facilitate manipulation
34 of the data, so it would always appear the same
35 way.

36 MR. LUNN: Did you want to mark it, as well as...

37 MS. CALLAN: Yes, I'd like to mark it as an exhibit.

38 THE REGISTRAR: That last document, Ms. Callan, was
39 there two documents there? We feel that it has
40 been marked before.

41 MS. CALLAN: The document I'm referring to is
42 BCP002864, and Mr. Lunn modified by hiding some
43 columns.

44 MR. LUNN: We're talking about Tab 45, sorry, that's on
45 the screen right now.

46 MS. CALLAN: Oh, yes, that one needs to be marked as an
47 exhibit, as well.

66

PANEL NO. 59

cross-exam by Ms. Callan (BCPROV)

Cross-exam by Mr. Blair (BCSFA)

1 THE REGISTRAR: So this is a separate document,
2 independent of the other one.

3 MR. LUNN: We believe this has been marked previously.

4 MS. CALLAN: My understanding is that Mr. McDade didn't
5 mark it because we didn't have a clean copy yet,
6 so this is the clean copy of that.

7 THE REGISTRAR: Thank you. Now, the second document
8 you wanted marked will be marked as 1678.
9

10 EXHIBIT 1678: Excel spreadsheet Data Sort
11 for BC - Dr. Marty 01 - BCP002864
12 Histopathology detail
13

14 THE COMMISSIONER: Mr. Blair.

15 MR. BLAIR: Thank you, Mr. Commissioner. For the
16 record it's Alan Blair, appearing for the B.C.
17 Salmon Farmers Association, and with me is my
18 associate, Shane Hopkins-Utter.
19

20 CROSS-EXAMINATION BY MR. BLAIR:
21

22 Q Gentlemen of the panel, I'll start with an opening
23 question, if I may. Would you all agree as
24 experts in the area of management of fish health
25 and aquaculture that you have a high confidence
26 that the risk of disease in salmon farms is
27 manageable with appropriate care and attention?
28 Right to left, perhaps. Dr. Marty.

29 DR. MARTY: Yes.

30 Q Dr. McKenzie.

31 DR. MCKENZIE: I do.

32 Q Dr. Sheppard.

33 DR. SHEPPARD: I agree.

34 Q Not "Dr.", but do you have an opinion on that from
35 a management perspective, Mr. Swerdfager?

36 MR. SWERDFAGER: I agree.

37 Q Thank you. Mr. Lunn, would you be kind enough to
38 go to B.C. Salmon Farmers Tab 20, please. This
39 question -- just one second, please.

40 MR. MARTLAND: I think in our binder we may have a
41 different document at Tab 20, which would be a
42 Briefing Note for the Minister, For Information.
43 I don't know if that's what Mr. Blair had, or, Mr.
44 Lunn, if we might try that. I'm sorry, 21.

45 MR. BLAIR: Mr. Lunn, are you at B.C. Tab 20?

46 MR. LUNN: This is 21 on the screen.

47 MR. BLAIR: I was asking for 20, I'm sorry. It may

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1 have been my mistake. I think I'm going there
2 eventually. Thank you. That looks better. Could
3 you go to page 2, please.

4 Q Dr. Sheppard, you see this is a document that you
5 prepared as a briefing note to the Minister. The
6 date on the first page is August the 1st, 2007.
7 Do you agree, Dr. Sheppard?

8 DR. SHEPPARD: I agree.

9 Q And in this document you referred to some of the
10 issues which were arising in the aquaculture
11 industry in Chile. And if we could go back to
12 page 1, please, Mr. Lunn, the passage immediately
13 above in bold "First Nations Considerations". If
14 you could highlight that paragraph of
15 "Discussion". Dr. Sheppard, you referred to a
16 number of issues which were happening in the
17 Chilean farm salmon industry at the time, and the
18 bottom sentence after you highlight the things
19 that were going on in Chile, you note:

20
21 These high-risk activities are not allowed in
22 [British Columbia].

23
24 Do you see that comment?

25 DR. SHEPPARD: I do.

26 Q And that was the case in 2007 and those activities
27 are still not allowed in British Columbia in 2011?

28 DR. SHEPPARD: Mr. Commissioner, as you're aware, these
29 briefing notes sometimes are drafted and then go
30 places after me. But I have to admit that this
31 one, to my recollection, was done -- and sometimes
32 these briefing notes take some time to develop
33 before they get sent along, and this was done in a
34 fairly rushed manner, based on a media report, I
35 think the day previous. And that particular
36 statement I would probably tend to word more
37 accurately now.

38 Q We'll take you to the second page of the document.
39 The document essentially relates to the issue of
40 ISA and egg importation. If we go to page 2,
41 please. Thank you. If you could have a look at
42 the first two paragraphs. The first paragraph
43 starts with "Company veterinarians" and the second
44 one "The most likely source of ISA". If you could
45 read those two paragraphs, and comment on them,
46 please, Dr. Sheppard.

47 DR. SHEPPARD: The first bullet reads:

- 1
2 • Company veterinarians and BCMAL's fish health
3 audit and surveillance program is well suited
4 to detect any viral problems, including [ISA
5 virus] ISA, at fish farms as early as
6 possible.
7

8 I agree with that statement.

9 Q And the second paragraph into the record, as well.
10 DR. SHEPPARD: The second bullet reads:

- 11
12 • The most likely source for ISA in BC is from
13 migrating wild fishes from other regions of
14 the Pacific Ocean as there is no importation
15 of live Atlantic salmon or eggs to BC.
16

17 MR. BLAIR: And I wonder if this could be marked as the
18 next exhibit, please.

19 THE REGISTRAR: Exhibit 1679.
20

21 EXHIBIT 1679: Sheppard, Ministry of
22 Agriculture and Lands, Briefing Note for
23 Minister, For Information, August 1, 2007
24

25 MR. BLAIR:

26 Q And now, Dr. McKenzie, my questions now are for
27 you. With this document on the screen as Exhibit
28 1679, can you comment on the remarks that Dr.
29 Sheppard made in 2007, and in particular can you
30 comment on the ability of company veterinarians
31 and the auditing staff to detect viral problems on
32 farms, such as an occurrence of ISA.

33 DR. MCKENZIE: Mr. Commissioner, sorry to go back on
34 topics that I've addressed a little bit before,
35 but I'm very confident that veterinarians and the
36 auditing program would detect ISA for the specific
37 reasons I discussed before, which was the multi-
38 tiered approach we have for fish health
39 management. We start off at the farm level where
40 the veterinarian and the technician are on a daily
41 basis monitoring for disease and any changes in
42 trends or mortality, veterinarians such as myself
43 that are skilled in detecting ISA, recognizing
44 some of the early clinical signs and the
45 appropriate sampling methodologies and diagnostic
46 tests that will be required.

47 The next level of that program is then an

1 auditing program where the province, and now DFO
2 comes in and does additional sampling on top of
3 what we do on a regular basis, searching for
4 silvers, so targeted sampling, that is biased
5 towards finding disease. On top of that level we
6 -- and they do analysis at that level, so --
7 sorry, they do analysis for ISA at that level.
8 All of this combined meets what is the
9 international standard for detection of disease or
10 freedom from disease. And because these standards
11 can meet that level, the OIE recognized level of
12 diagnostics, I feel very comfortable that the
13 program that we have in place would detect the
14 virus if it was to occur.

15 MR. BLAIR: Thank you. Mr. Lunn, could we go to B.C.
16 Tab number 3, please.

17 MR. LUNN: B.C. Farmers you mean?

18 MR. BLAIR: B.C. Farmers.

19 MR. LUNN: I thought you mean Province.

20 MR. BLAIR: I'm sorry. I'm 0 for 2 with you this
21 afternoon, Mr. Lunn. We'll try to improve. B.C.
22 Farmers Tab 3, the top will look like this. There
23 we go. Thank you.

24 Q This question is for Dr. McKenzie. Dr. McKenzie,
25 I'm going to suggest that this document, which
26 goes on for several pages, is available on a B.C.
27 Salmon Farmers Association website and addresses
28 the issue of "Fish Health", and what is done by a
29 salmon farmer to maintain healthy fish, and the
30 health-related measures that are taken on the
31 farms in British Columbia, as well as the role of
32 the fish health veterinarian. I assume you're
33 familiar with this particular document?

34 DR. MCKENZIE: I am.

35 MR. BLAIR: Could we mark it as the next exhibit,
36 please.

37 THE REGISTRAR: Exhibit 1680.

38
39 EXHIBIT 1680: B.C. Salmon Farmers
40 Association website printout re "Fish Health"
41

42 MR. BLAIR: Thank you.

43 Q Can you comment just briefly, sir, on some of the
44 items which are highlighted in this document.

45 DR. MCKENZIE: Just highlighted at the top, or...?

46 Q You know what, in the interests of time, we've had
47 it filed, we can read it. We'll move on.

1 Dr. McKenzie, my questions now relate to your
2 knowledge of the management of fish health and the
3 considerations that you take into account as a --
4 as a fish health professional and as a fish
5 veterinarian, the strategy you use and your
6 incorporation of various management systems. And
7 I'm thinking in particular of ecosystems
8 management and area management and mitigation
9 strategies. Can you expand a little bit on how
10 fish health management is done at your particular
11 company and the industry generally, please.

12 DR. MCKENZIE: So not specifically the technical
13 aspects, like...

14 Q No, just the reference that I understand from the
15 profession that the use of ecosystem management
16 and area management and the like.

17 DR. MCKENZIE: Yes. So I've already touched on a
18 little bit of the fish health management plan and
19 the specific items that fall into that. Now,
20 that's a guidance document for how we -- how we
21 manage our day-to-day working activities and how
22 production strategies are done. Now, into the
23 bigger picture of how we manage disease is we
24 always have to manage disease in a very holistic
25 perspective. We have to be monitoring the -- we
26 monitor the environment very closely as it has
27 great influence on our fish health.

28 We monitor fish -- a lot of aspects of our
29 fish, but in a big picture we manage on an area
30 basis, so we are conscious of diseases that are
31 found in the wild stocks, very important to us.
32 We don't have a lot of knowledge about what
33 exactly is in the wild stocks, many times, but
34 it's very important that we understand what is
35 present, what could be exposed to our fish.

36 We also manage our farms on an area basis, so
37 that we are looking not just within a pen. We're
38 not blind, we're not operating in a fish health
39 perspective in a vacuum. So we don't see our farm
40 as that. We look at interactions in the
41 environment. We often consider migratory pathways
42 and how we manage fish. We consider different
43 aspects of whether it be algae blooms, or changes
44 in the environment that may impact how we do our
45 -- use our production strategies. Where we enter
46 fish, what times of year we will enter fish in
47 order to minimize exposure to, say, blooms of

1 jellyfish, or plankton, or -- so we're very
2 conscious, and we have to manage it in a very
3 large way.

4 In some of the specific aspects of our farm
5 management, we have a very close relationship with
6 other companies in the area so that we can have a
7 very open communication about issues and how we
8 manage our farms together so that we are -- we are
9 monitoring areas and understanding if there's any
10 changes in those areas.

11 Q Thanks, Dr. McKenzie. Mr. Lunn, we'll try B.C.
12 Salmon Farmers Association Tab 10, please. If you
13 could put that on a split screen with B.C. Salmon
14 Farmers Tab 35, as well. Dr. McKenzie, as these
15 are being queued up on the screen, we've
16 highlighted on the screen a report prepared by Dr.
17 Ron Lewis for the B.C. Salmon Farmers Association,
18 and I'm also asking Mr. Lunn to bring up the
19 *curriculum vitae* of Dr. Lewis. I'm going to be
20 seeking to have the *curriculum vitae* marked only
21 for identification, Mr. Commissioner, but I'd ask
22 Dr. McKenzie to quickly run through the
23 credentials of Dr. Lewis.

24 DR. MCKENZIE: Dr. Ron Lewis is a veterinarian. He
25 also has a Master's degree in Pathology, and he
26 has a diploma from the American College of
27 Veterinary Pathologists. His experience, he has
28 over 25 years of experience as a veterinarian,
29 working in the B.C. Ministry of Agriculture and
30 Lands, and between the time of 1999, I believe,
31 and 2009, he was the Chief Veterinary Officer for
32 the Province of B.C., as well as the Director of
33 the Animal Health Branch.

34 MR. BLAIR: Could his c.v. be marked as the next for
35 identification, the next lettered exhibit for
36 identification.

37 THE REGISTRAR: That's Tab 35 you're referring to?

38 MR. BLAIR: Yes.

39 THE REGISTRAR: Yes, that will be marked YY, double
40 "Y".

41
42 YY FOR IDENTIFICATION: Abbreviated Resume of
43 Ronald John Lewis
44

45 MR. BLAIR: Thank you. Thank you, Mr. Lunn. You can
46 take that off the screen so that we can see more
47 fully the paper, the Tab 10. Thank you.

1 Q Dr. McKenzie, can you explain to the Commission
2 the history of this paper, how it was created and
3 for what purpose and on whose instructions?

4 DR. MCKENZIE: Mr. Commissioner, we recognized that
5 there was a number of diseases identified by Mr.
6 Kent in his expert report that he considered high
7 level risk.

8 Q And when you say "we", do you mean yourself and
9 the (indiscernible - overlapping speakers).

10 DR. MCKENZIE: The B.C. Salmon Farmers Association,
11 sorry. I'm part of a committee that is -- has
12 been organizing efforts on the B.C. Salmon Farmers
13 committee for the Cohen Commission. We identified
14 the need to look into these diseases and how they
15 relate to aquaculture. Because Dr. Ron Lewis, who
16 was the Director of the Animal Health Branch, and
17 therefore he has overseen the development of
18 aquaculture program as far as fish health is
19 concerned for the last ten years, we asked him --
20 as a result, we asked him to look at the diseases
21 of high risk and to look into their occurrence in
22 the aquaculture industry with the idea of looking
23 at risk, what was present in -- on farms and what
24 sort of mitigative actions were taken by farms to
25 control these diseases.

26 Now, in summary, if -- so he, in this
27 document, he has gone through each of the diseases
28 that were identified as severe, I believe was the
29 terminology Kent used, or high risk, or I'm not --
30 I believe it's high risk. He went through the six
31 agents that were considered high risk for sockeye
32 salmon and explained their existence in the
33 aquaculture industry, and whether they occur, and
34 what steps.

35 If we can -- if we can go to page 3, the
36 second paragraph down, where it starts "Of the
37 high-risk" diseases. So in his conclusion, from
38 assessing the prevalence of these diseases on
39 farms, of the high-risk diseases identified by Dr.
40 Kent, the salmon farm industry, really there was
41 only two that appeared to be a possible source,
42 and these are the IHN and BKD.

43 IHN would be -- is a factor, it's present in
44 the wild, and we know it's been present and has
45 been previously mentioned through these
46 discussions that there has not been a positive IHN
47 since 2003 on any farm. And it has been

1 documented in the past that they are quite --
2 sockeye salmon, adult sockeye salmon can be
3 resistant to this virus.

4 But BKD is the other pathogen that was
5 identified, and it occurs mostly in chinook and
6 coho salmon. And as he mentioned here, the
7 prevalence is diminishing, which is consistent
8 with what has been seen in the database, and
9 basically the prevalence has been diminishing
10 because of strategies around breeding programs and
11 screening programs for brood stock to minimize any
12 sort of vertical transmission.

13 Q Dr. McKenzie, I see on the following page 4 of 4
14 it's signed by Dr. Lewis and dated August the
15 10th, 2011, so this is a very recent report.

16 DR. MCKENZIE: Yes.

17 Q It's also a very short report. My question to you
18 now, sir, is as an expert, fish health expert,
19 have you read and do you adopt the findings of the
20 report of Dr. McKenzie (sic), which is exhibited
21 on the screen today?

22 DR. MCKENZIE: I do, I think it's a very good summary.

23 MR. BLAIR: Mr. Commissioner, we're seeking to have
24 this marked as the next exhibit.

25 MR. McDADE: We object, Mr. Commissioner. My friend
26 has nothing but if he's not persistent. This is a
27 backhanded way to try and get his expert report
28 in. We had a number of experts that we wanted to
29 have called. The Commission has ruled that we
30 can't do that, it would be wrong to allow my
31 friend to do it and not allow us to do it. We've
32 been over this before. I don't think we need to
33 take a lot of time.

34 MR. MARTLAND: Mr. Commissioner, unless there's an
35 application I'm not familiar with, the Commission
36 hasn't ruled. Commission counsel have given their
37 view on what we're prepared to do. We've
38 communicated a hearing plan. I don't believe
39 anyone has brought an application to have a
40 further witness called vis-à-vis aquaculture or
41 disease hearings. We would suggest that as has
42 been the case very broadly through many of these
43 hearings, if the document is used to ask
44 questions, as has been done, if ultimately
45 questions with respect to its use or its weight,
46 without having heard testimony from the author,
47 and in the absence of cross-examining the author

1 of the report, or considerations in terms of the
2 ultimate use or weight to be given to the
3 document, my submission would be that, broadly
4 speaking, it's been a liberal approach to
5 admissibility in terms of documents that are put
6 forward. And on that footing, our suggestion
7 would be that this document can be received into
8 evidence.

9 THE COMMISSIONER: I can save you some time, I think,
10 Mr. McDade. I thank you for that, Mr. Martland,
11 but there's a number of documents now that have
12 been marked for identification purposes that at
13 some juncture are going to have to be dealt with.
14 And this particular document may or may not fall
15 into the category of some of those documents, but
16 my preference would be that it be marked for
17 identification purposes at this time. And there
18 will be an opportunity at some point, either as a
19 separate submission or in the final submissions,
20 to deal with whether or not the documents marked
21 for identification purposes ultimately should be
22 received in evidence, and counsel can make their
23 submissions at that time. I think it should be
24 marked for identification purposes, because it has
25 been used to examine this witness, just as I think
26 the credentials of Dr. Lewis were marked for
27 identification.

28 MR. BLAIR: If I may speak to that further, Mr.
29 Commissioner, we specifically marked the
30 credentials for identification because I think
31 that's the appropriate use of them. The
32 Commission counsel, the participants should
33 understand who this is written by, and nothing
34 more. It's a backgrounder.

35 What distinguishes this report and from the
36 others that Mr. McDade has suggested that the B.C.
37 Salmon Farmers have been persistent on, is this is
38 the first time we've had a B.C. Salmon Farmers
39 applicant, a participant here, and he's a fish
40 health professional. He's an expert. He is no
41 different, I say, than any other experts in any
42 other forum where he has said I have read and I
43 adopt the report. We didn't put that test for the
44 other reports to the witnesses previously. This
45 report speaks to Dr. McKenzie's expertise.

46 The history again, I think, very briefly
47 bears some -- and I realize I'm taking up my time,

1 but we've all tried to have experts entered on the
2 panels and we understand that the time just does
3 not permit that.

4 My client is in a unique position. It's a
5 unique position for a couple of reasons. Early in
6 the process the Commission, when asked whether or
7 not there could be findings of fault, concluded
8 that in some circumstances there could be findings
9 of fault. My client is listed in the terms of
10 reference as a matter that the Commission should
11 look into to determine whether our client, the
12 B.C. Salmon Farmers, may have contributed to the
13 decline. I think that puts us in a fairly unique
14 position, where when you're entitled to look to
15 see whether we may have caused the decline, we
16 should surely be entitled to have evidence
17 entered, particularly where there can be a finding
18 of fault.

19 I did look up the Rules of Procedure and I
20 understand the oddity is that Rule 38 of the
21 Procedure would permit this report to be filed as
22 a public submission on the website. There's
23 nothing precluding it. Indeed, I think the
24 Commission, it says, can look at any public
25 submissions. Now, that seems like a backdoor way
26 of getting evidence before the Commission.

27 I think in fairness to my client, and also to
28 the participants here, they ought to know that my
29 client takes these matters very seriously. You've
30 heard, Mr. Commissioner, that these are very
31 technical documents, these massive spreadsheets
32 and fish health databases. In an effort to make
33 this understandable for the Commission, we've had
34 these reports prepared by recognized fish health
35 experts.

36 I regret we're taking up the time for the
37 debate, because to me it seems so clear that when
38 it's been read and adopted by an expert witness, I
39 don't understand why it would be excluded.

40 I appreciate that we might argue this later,
41 but we are rapidly losing the opportunity to have
42 the exercise as we have today with an expert who
43 can actually on the stand say "I'm an expert.
44 He's an expert. I read it. I have adopted it."

45 I know that Mr. Taylor wants to have a
46 moment, and I'll yield the microphone to him.

47 MR. TAYLOR: I'll be quick. There's a case called

1 **Marquard** - I mispronounce it, which I'm not
2 familiar with. I sense from your nod you are, Mr.
3 Commissioner - which says in short that, as I
4 understand it, that if an opinion is put to an
5 expert on the stand and he adopts the opinion, the
6 opinion can go in as evidence. And so this is
7 distinguishable from some of the other material
8 that's been coming before you, in that sense.

9 THE COMMISSIONER: Yes, thank you for that, Mr. Taylor.
10 I think your last few remarks are exactly why I
11 want to take the step of marking this for
12 identification purposes. I want to have the
13 opportunity for not only counsel who are here
14 today, but other counsel who are not here today,
15 where in the case of the particular sessions they
16 attended, these same kind of issues may have
17 arisen so that everyone can have a fair
18 opportunity to make their submissions on the
19 question of whether documents marked for
20 identification should be entered. There may be
21 similar cases to yours, Mr. Blair, where other
22 counsel are not here today who may wish to address
23 this. And I'm trying to deal with this fairly.

24 I'm not intending to rule on this today. I'm
25 not intending to in any way prohibit you from
26 asking the questions like the ones you've just
27 asked. But my preference would be to give
28 everyone an opportunity to give me their views on
29 these categories of documents that don't all fall
30 into the same case, although they've all been
31 marked for identification purposes. That's really
32 the intent of my remarks to you. So I'm not
33 ruling against you, sir. I simply wanted to be
34 cautious here to make sure that all counsel, even
35 those who are not here today, may have an
36 opportunity to take a position, as Mr. McDade has,
37 and others might follow suit with him. I'd like
38 to hear from them, as well.

39 MR. BLAIR: Thank you for that additional
40 clarification.

41 THE REGISTRAR: That document will now be marked as for
42 identification as ZZ, double "Z".

43
44 ZZ FOR IDENTIFICATION: Lewis, Infectious
45 Diseases and Potential Impacts on Survival of
46 Fraser River Sockeye Salmon, August 10, 2011
47

1 MR. BLAIR: Thank you.

2 Q Mr. Lunn, B.C. Salmon Farmers Tab 13. Dr.
3 McKenzie, these questions are for you, and I'll
4 just lead you a little bit on this. This is
5 another report prepared as the last one, and also
6 by Dr. Lewis, correct?

7 DR. MCKENZIE: That's correct.

8 Q And it was specifically, as the title might
9 suggest, the question of whether or not sea lice
10 could act as disease vectors. And you've read
11 this report?

12 DR. MCKENZIE: I have, yes.

13 Q Can you summarize it briefly.

14 DR. MCKENZIE: In this report Dr. Lewis looks at the
15 literature that's available on substantiating
16 whether or not *Lepeoptheirus*, sea lice, are
17 capable of either acting as a vector of disease,
18 or in other fashions and what diseases may be,
19 with the idea of looking at the potential risk in
20 the B.C. situation. So in this case he has looked
21 at the diseases in his summary. He has -- he has
22 looked at the diseases that are -- sorry. In his
23 summary he's evaluated the potential for sea lice
24 to be a vector or transmit disease. He agrees in
25 this situation that sea lice can act as a
26 potential transmitter of disease, but more than
27 likely as a mechanical transmission versus a
28 vertical transmission.

29 MR. BLAIR: Thank you. Could this be marked as the
30 next for identification, please.

31 THE REGISTRAR: For identification?

32 MR. BLAIR: Yes.

33 THE REGISTRAR: That will be triple "A", AAA.

34

35 AAA FOR IDENTIFICATION: Lewis, Sea Lice -
36 Could They Act as Disease Vectors? July 19,
37 2011
38

39

40 MR. BLAIR: Mr. Commissioner, to speed it along, of
41 course, I think the Commission knows I wish to
42 mark it for an exhibit. I don't want to go
43 through the charade of being overruled, so in all
44 cases, including the next one, I seek to have them
45 marked as an exhibit, but I take your earlier
46 ruling and therefore I'm asking the registrar to
47 mark them for identification.

THE COMMISSIONER: Thank you very much.

1 MR. BLAIR: Thank you.

2 Q B.C. Salmon Farmers Tab 4 -- it's actually
3 identification 00. This is also for Dr. McKenzie.
4 This is a report prepared by Dr. Hammell, and
5 again it's in the same category. This report was
6 prepared at the request of the B.C. Salmon Farmers
7 to assist the Commission in understanding, as the
8 title might suggest, "Qualitative assessment of
9 risk, and mitigation, of importing exotic disease
10 through eggs"; is that correct?

11 DR. McKENZIE: Yes. This document was prepared by Dr.
12 Larry Hammell, as you suggested.

13 Q And have you had an opportunity to read this
14 report?

15 DR. McKENZIE: I have.

16 Q Can you summarize it briefly.

17 DR. McKENZIE: Yes. So Dr. Hammell is the Director of
18 the OIE Collaborating Centre on Epidemiology &
19 Risk Assessment for Aquatic Animal Diseases, and
20 so he's -- and he has a tremendous amount of
21 experience in the area of ISA. We requested of
22 him, in order to save time for the Commission, as
23 we understood imports were of great interest, we
24 asked him to conduct a risk assessment of the
25 practices of importation into British Columbia
26 from 1985 until 2009.

27 Q Thank you, Dr. McKenzie. Could we pull up Tab 32,
28 please. This is the c.v. of Dr. Hammell?

29 DR. McKENZIE: Yes.

30 MR. BLAIR: Might that be marked for identification, as
31 well.

32 THE REGISTRAR: That will be marked as triple "B", BBB.

33

34 BBB FOR IDENTIFICATION: *Curriculum vitae* of
35 K. Larry Hammell, May 2011
36

36

37 MR. BLAIR: Thank you.

38 Q Dr. McKenzie, how do you reply to people whose
39 rhetoric suggests that ISA can be introduced
40 through egg importation?

41 DR. McKENZIE: I have to admit, Mr. Commissioner, that
42 the rhetoric that continues on about ISA
43 introductions and the importation is concerning to
44 me, both personally and professionally.
45 Professionally in the sense that there are so many
46 levels of experts and veterinarians involved, as I
47 discussed before. Professional veterinarians

1 working in the field, looking every day, that are
2 fully capable and trained to identify ISA, that
3 next here we have experts and in the field of
4 regulatory medicine, working with DFO or the
5 Province that also have programs that are sampling
6 for ISA, and are not finding it.

7 In addition to that, we have some of the
8 highest level of technical expertise in diagnostic
9 capability, such as Dr. Marty and his colleagues
10 in areas that we've worked in.

11 In addition to that, we have now a report
12 from CFIA that, you know, they've looked at the
13 data we have on ISA and they see it as a no-risk,
14 in their words from their report, and Canada
15 recognizes, based on international standards, that
16 B.C. is free of ISA, based on this infrastructure
17 of fish health expertise that is in place.

18 But - but - the commentary by people that a
19 lot of it was initiated when Ms. Morton raised the
20 concerns of the ISA reports, comments of that
21 constantly in the media seem to dissuade or
22 dismiss all of this expertise in these layers of
23 audits and credentials. And professionally I find
24 that very, very concerning that we can have this
25 many individuals, skilled individuals involved,
26 and we can have people interpret, non-fish health
27 experts interpret information and run with it and
28 create this type of -- this type of situation. So
29 I find that hard -- it's hard to understand.

30 Q I believe my time is all but up, and so I'll ask
31 Mr. Lunn to put XX for identification on the
32 screen. Dr. McKenzie, a few days ago in response
33 to questions by my learned friend, Mr. McDade, he
34 was asking witnesses on an earlier panel with
35 respect to the stocking of a site known as --
36 described as Conville Bay, and the suggestion was
37 made to an earlier panel that Conville Bay was
38 stocked until mid to late 2007. You've had the
39 opportunity to check the records of that farm.
40 What can you say about that?

41 DR. MCKENZIE: Well, to start off, obviously we're
42 referring to this particular graph --

43 Q We'll get to the graph in a moment.

44 DR. MCKENZIE: Okay.

45 Q Just speak to the issue of stocking.

46 DR. MCKENZIE: Okay. In the issue of Conville Bay,
47 Conville Bay is a marine harvest site. Having

1 read the transcripts, I have spoken with the
2 veterinarian in charge of that facility, and we
3 discussed the issue of marine anaemia. She was
4 kind of surprised that there was an issue because
5 marine anaemia had not been seen on the site and
6 at any significant level. And what she wanted to
7 -- the question we posed to her was, was that
8 accurate as far as the harvest data. I've looked
9 at the Salmon Farmers data itself, and the harvest
10 of Conville Bay actually started in late -- it
11 started in December of 2006, and they were almost
12 75 percent empty by March of 2007. And the last,
13 I believe the last harvest was in early May.
14 Q And directing your attention now to XX on the
15 screen.
16 DR. McKENZIE: Yes.
17 Q The graph which I understand, I think, is in
18 evidence from my friend, Mr. McDade, was prepared
19 by Ms. Morton in, if I'm correct in that, whoever
20 prepared it, there appear to be eight quarterly
21 reports for 2007. Could you just look along the
22 axis at the bottom. I think I see 2007 eight
23 times. It was a very long year, I guess.
24 DR. McKENZIE: Yes, and there's no 2006.
25 MR. BLAIR: Okay, thank you. No further questions.
26 MR. MARTLAND: I have counsel for the Aquaculture
27 Coalition, also at 30 minutes, next, Mr.
28 Commissioner.
29 MR. McDADE: Thank you, Mr. Commissioner. It's Greg
30 McDade for the Aquaculture Coalition.
31
32 CROSS-EXAMINATION BY MR. McDADE:
33
34 Q Given the shortness of time, I am also going to
35 just start by putting in a number of documents, I
36 think. Can we have Aquaculture Tab 61 up on the
37 screen. I may ask questions about these later. I
38 just want to get the document -- make sure we get
39 the documents in as exhibits. Mr. Swerdfager, you
40 were part of this email string in February 2010,
41 that's correct, isn't it?
42 MR. SWERDFAGER: Yeah, I see my name on there partway
43 down.
44 MR. McDADE: All right. Could we have that marked as
45 the next exhibit.
46 THE REGISTRAR: Exhibit 1681.
47

1 EXHIBIT 1681: Email string between Denise
2 Lapratte, Trevor Swerdfager and others,
3 February 22, 2010 to February 25, 2010
4

5 MR. McDADE:

6 Q Tab 51, please. This is also an email string in
7 relation to yourself and Mr. Thomson. Can we --
8 will you confirm that and can we have that marked
9 as the next exhibit.

10 THE REGISTRAR: Exhibit 1682.

11
12 EXHIBIT 1682: Email string between Annie R.
13 Champagne, Trevor Swerdfager and others,
14 March 31, 2010 to April 30, 2010
15

16 MR. SWERDFAGER: I don't see my name on that one. Is
17 that what you were asking?

18 MR. McDADE:

19 Q Perhaps we can go to the next page. There, you
20 see your name down in the third page there.

21 MR. SWERDFAGER: Okay, yes.

22 MR. McDADE: So that's -- next can we have Tab 24 up.
23 This is a -- there's a large number of pages in
24 this particular document, received from Canada.
25 If we could scroll down to later pages, Mr. Lunn.
26 This starts with two briefing notes to the
27 Regional Director General regarding Atlantic
28 Salmon Eggs. Can we accept that's a DFO document
29 and have that admitted as the next exhibit.

30 THE REGISTRAR: Exhibit 1683.

31
32 EXHIBIT 1683: Briefing note for the Regional
33 Director General, Request to Import Atlantic
34 Salmon Eggs from Iceland October 3, 2003
35 [DFO]
36

37 MR. McDADE: Can we have Tab 25 up on the screen,
38 please. These are a series of reports on egg
39 testing, I understand. Some of these may be in a
40 previous exhibit, but I'm not sure they all are.
41 I'd like to mark this group as the next exhibit,
42 please.

43 THE REGISTRAR: Exhibit 1684.

44
45 EXHIBIT 1684: Reports on egg testing [DFO]
46

47 MR. McDADE: Can we have Aqua Tab 3 up on the screen.

1 Or sorry -- sorry, Mr. Lunn, could we have Tab 53
2 up first.

3 Q Mr. Swerdfager, you testified before a
4 Parliamentary Committee, and I believe that's
5 October of this year, October of 2010?

6 MR. SWERDFAGER: I believe it was October 26. If we
7 scroll down further, the date's on there, but it
8 was -- I appeared before a Parliamentary Committee
9 twice, actually.

10 MR. MARTLAND: I'm going to raise the issue, Mr.
11 Spiegelman's on his feet, as well. There's issues
12 with respect to this. I don't know what proposed
13 use was to be made of the document. I don't want
14 to anticipate Canada's objection.

15 MR. SPIEGELMAN: I will anticipate the use, although
16 perhaps I should -- I was waiting until my friend
17 was attempting to put this into evidence. There's
18 a well-established rule of evidence that testimony
19 given to a Parliament or a Parliamentary Committee
20 can't be entered into evidence in other
21 proceedings, and so we will object to this going
22 into the evidence here today.

23 MR. McDADE: Mr. Commissioner, to save time, perhaps I
24 can suggest it be marked for identification and we
25 argue that out later.

26 MR. MARTLAND: That's fine. I'll tell you our
27 position's the same. I think there's a clear rule
28 of evidence on that very question, but if we're
29 marking for ID, it's a nonissue.

30 THE REGISTRAR: That document will be marked for
31 identification CCC, triple "C".

32
33 CCC FOR IDENTIFICATION: Parliamentary
34 Standing Committee on Fisheries and Oceans,
35 Evidence, October 26, 2010
36

37 MR. McDADE:

38 Q And then Tab 3, please. I think this is your
39 document, Dr. Sheppard. This is a spreadsheet
40 that you keep in your health database; is that
41 right?

42 DR. SHEPPARD: This is an Excel spreadsheet which is a
43 reflection of the data from the Fish Health
44 Database. It needed to be created into this form
45 so it was transferable and readable. It was
46 extracted from the database in this format.

47 Q And this is the database that you are the keeper

1 of, or were, when you were working for the
2 province?

3 DR. SHEPPARD: I inherited this database. It began in
4 2004, and I began with the province in 2007, and
5 managed it from that point forward.

6 MR. McDADE: And this is a -- well, can I have that
7 marked as the next exhibit.

8 THE REGISTRAR: Exhibit 1683 (sic).

9 MR. McDADE: Thank you. And --

10 THE REGISTRAR: Actually, you're getting ahead of me,
11 85.

12
13 EXHIBIT 1685: Excel spreadsheet of Fish
14 Health Database

15
16 MR. McDADE:

17 Q Mr. Lunn, can we go to supplemental document Tab
18 D. Now, none of you gentlemen are on that email
19 list, I don't think, but I'm going to -- I'd like
20 to ask Dr. Marty about this. It's an email from
21 -- between Dr. Garver and Dr. Saksida. Unless
22 there's an objection, I'd like to enter that as
23 the next exhibit.

24 THE REGISTRAR: Exhibit 1686.

25
26 EXHIBIT 1686: Email string between Kyle
27 Garver, Sonja Saksida and others from January
28 27, 2009 to January 28, 2009

29
30 MR. McDADE:

31 Q Now, gentlemen, let me turn to my questions.
32 First of all, Dr. Marty, you're employed full-time
33 as an employee of the Province?

34 DR. MARTY: Yes.

35 Q And it's your program that in part is under
36 examination here.

37 DR. MARTY: Yes.

38 Q And, Dr. Sheppard, you and Mr. Swerdfager are
39 full-time employees of the Government of Canada?

40 DR. SHEPPARD: That's correct.

41 Q And you were -- when you were with the Province,
42 it was your program that has been extensively
43 examined here that you're defending?

44 DR. SHEPPARD: When I -- during my employment with the
45 Province of British Columbia, I managed the Fish
46 Health Program, which is part of the assessment of
47 animals within the Animal Health Branch.

1 Q And, Dr. McKenzie, you're a full-time employee of
2 one of the fish farm companies?
3 DR. MCKENZIE: That's correct.
4 Q And so I take it all you gentlemen are supporters
5 of the status quo. Let me ask that question
6 differently. Is there anyone here -- there's no
7 one here who's an independent expert from the
8 government and the companies as to the structure
9 here.
10 DR. MARTY: Maybe you should define "independent"?
11 MR. McDADE: I just want to make a statement, Mr.
12 Commissioner, that the choice of experts for this
13 important panel on disease is missing any expert
14 who can comment in opposition to the current
15 structure. But we'll work with what we've got,
16 even if it's working with one hand behind our
17 back.
18 MR. MARTLAND: I'm going to just offer in response that
19 our hearing plan received Mr. McDade's
20 endorsement, so I'll take that point, but I think
21 it should be understood in that light.
22 MR. McDADE: Well, the experts that we asked to call
23 weren't being called. You're not suggesting that
24 we haven't asked for other experts to be called.
25 MR. MARTLAND: No, certainly I haven't suggested that.
26 But the final hearing plan is one that is received
27 to differing degrees, either supports or at least
28 not objections in the way of applications, Mr.
29 Commissioner.
30 MR. McDADE: All right, I'm content with that, Mr.
31 Commissioner.
32 Q Now, Dr. Marty, let me begin with you. You were
33 in hearings for the last four or five days when we
34 were examining disease, and particularly when we
35 were examining the Fish Health Database?
36 DR. MARTY: Yes.
37 Q And so let's see if I can get agreement on a
38 couple of points, which I think are non-
39 controversial. The process you go through in
40 terms of histopathology and diagnosis, you heard
41 our questions of Dr. Korman that some 60 percent
42 of the time the diagnosis was left open.
43 DR. MARTY: Yes.
44 Q And that's because you could neither say there
45 were no significant findings, nor could you
46 actually identify a particular disease?
47 DR. MARTY: Actually, the open diagnosis would have

1 been assigned by Dr. Sheppard or Dr. Keith, so
2 that question would need to be given to them.

3 Q All right. Dr. Sheppard, you agree that the open
4 diagnosis is roughly 6590 percent of the time?

5 DR. SHEPPARD: I can't recall the exact figure but
6 there were a large number of open diagnoses made
7 at a farm level.

8 Q And I want to get into that, this question of a
9 farm-level diagnoses. That's as I understood it,
10 and as I put to Dr. Korman, there are numerous
11 occasions that we saw in the database where five
12 or six fish might have been examined and where one
13 or two of those fish might have been -- had an
14 identification of disease, and in some cases two
15 different diseases, which led to an open
16 diagnosis; is that right?

17 DR. SHEPPARD: That can occur quite regularly, yes.

18 Q So these 60 percent of open diagnoses do not mean
19 there's no disease on the farm. As I understand
20 that they mean there's no, in your opinion,
21 disease at the farm level.

22 DR. SHEPPARD: Yes. May I refer you to the -- I think
23 what you're speaking of is largely defined in the
24 B.C. exhibit that Ms. Callan brought up, which is
25 the supplemental version or component of the 2009
26 annual audit. Within that supplemental document
27 is a list of case definitions, where you'll find
28 open diagnosis, which explains how and why a
29 veterinarian would come to that conclusion at the
30 population level.

31 So in answer to your question, Mr. McDade, if
32 we take as an arbitrary figure, there are 800,000
33 fish on the farm and we collect five silver
34 carcasses that day, I would instantly look at,
35 well, what's the mortality rate on the farm that
36 particular day. Those five fish that we collected
37 and two, as you said, may have been positive for
38 one disease, is such a minor percentage of
39 finding, compared to eight million fish that
40 didn't die that day, or, sorry, 800,000 fish that
41 didn't die that day, that, yes, we would consider
42 that that lab finding is a lab finding in an
43 individual, but is very little relevance to the
44 population as a whole.

45 Q So when you're giving a diagnosis of an open
46 diagnosis, you're not saying there's no disease on
47 that farm, you're just saying there's no

- 1 consistent disease across the farm; is that fair?
2 DR. SHEPPARD: That's correct. Within the open
3 diagnosis there's no significant findings, or no
4 findings in the laboratory at all. The open
5 diagnosis would suggest that we're -- the fish
6 obviously had been diseased possibly by trauma or
7 something else, not likely an infectious agent
8 that we found, or that we didn't find. So we
9 would call it an open diagnosis because we're
10 unable to conclude why those fish, the silvers
11 that we collected that day, may have ended up in
12 the dead pile.
- 13 Q So an open diagnosis could result, even though
14 there were a number of clinical signs of possible
15 diseases identified in the histopathology?
- 16 DR. SHEPPARD: Again we would take all bits of evidence
17 on that particular case into consideration, and we
18 do make that distinction between is there a
19 presence of a pathogen here, is there an infection
20 that's evident, what are the findings on the
21 individual level versus what are the findings of
22 the population level. So the indigenous pathogens
23 that we do find just exist naturally in
24 populations. As an analogy, if I suggested that
25 if everyone in this room had their skin swabbed,
26 we would find staphylococcus. Now staphylococcus
27 in humans can be the cause of flesh eating
28 disease, but we don't have flesh eating disease
29 and I would be hard pressed to suggest that anyone
30 in this room is actually sick to a staphylococcus,
31 the presence of staphylococcus on their skin. The
32 same situation in the farms.
- 33 Q So, Dr. Marty, as I understand it, you're the sole
34 veterinarian doing histopathology?
- 35 DR. MARTY: Fish histopathology, yes.
- 36 Q And you have been so since 2007?
- 37 DR. MARTY: Since 2004, August 2004.
- 38 Q All right. And so in that time you've not given
39 any diagnosis of marine anaemia, because you don't
40 believe in it.
- 41 DR. MARTY: That doesn't quite fairly characterize the
42 way I would say it. Marine anaemia, as I
43 mentioned before, is a clinical diagnosis. And so
44 it's not -- when I'm diagnosing something, it's an
45 observational diagnosis. So I might diagnose
46 interstitial cell hyperplasia, and then in my
47 comment I'll mention that in chinook salmon this

1 is a common finding with marine anaemia. So then
2 either Dr. McKenzie or Dr. Sheppard can look at
3 what they say in the fish in the field, and decide
4 is that consistent with their findings, then they
5 would put a clinical diagnosis.

6 An example again in human medicine would be
7 multiple sclerosis. As a pathologist you would
8 see inflammatory cells around nerves and so you
9 diagnose an inflammatory neuritis. And I would
10 send -- the medical pathologist would send that to
11 the practitioner, who then would take that with
12 the other information they have and they may come
13 up with a clinical diagnosis of multiple
14 sclerosis. The multiple sclerosis, we don't know
15 what the cause is. There's several different
16 hypotheses. The same thing with marine anaemia.

17 Q All right. So we're left when we're trying to
18 figure out how much marine anaemia might or might
19 not be there in terms of counting the symptoms.

20 DR. MARTY: That would be one thing that you would look
21 at is the symptoms, or I would call them lesions.

22 Q Okay. And, Dr. Sheppard, in your diagnosis of
23 farm-level -- of an infection, an active infection
24 at a population level, I think was the phrase we
25 saw in spreadsheet 1643 and 1645, do you use a
26 number, how many fish have to be infected before
27 you make that diagnosis, or what percentage?

28 DR. SHEPPARD: Well, again, Mr. Commissioner, it varies
29 from case to case because the evidence collected
30 from case to case varies. So again, the factors I
31 would look at are how many silver fish were
32 available. Sometimes if there are large numbers
33 of silver fresh carcasses available, it's a clear
34 indication that there's an active ongoing disease
35 occurring at the time. Then I would look at the
36 laboratory results and the information from Dr.
37 Marty to look at what percentage of those animals
38 actually are showing indications. And then I
39 would look at the rest of the information to see
40 if their veterinarian had been involved with the
41 mortality rate, if the mortality rate in the farm
42 had been high, whether there'd been treatments
43 occurring. All of that would be pieced together
44 to make me feel at the highest level of confidence
45 how to assign that diagnosis at the population
46 level.

47 Does that answer your question, Mr. McDade?

1 Q So it's a subjective consideration.
2 DR. SHEPPARD: We try to -- being cognizant that we're
3 looking for all sorts of things, everything from
4 indigenous natural infections through to disease
5 that's not infectious, through to exotic agents,
6 we try to apply as objective oversight as possible
7 to come to that conclusion based on again our
8 level of confidence with the information presented
9 for us.
10 Q All right. But in point of fact, though, with
11 that test in mind, as we heard from Dr. Korman,
12 there is about 30 high-risk infections a year in
13 fish farms.
14 DR. SHEPPARD: I don't think I can agree with your
15 characterization of the question. I'm not even
16 sure I quite understand it. Would you please
17 define what the 30 high-risk diseases are?
18 Q Well, I'm sorry, let me restate it the way Dr.
19 Korman, I think, stated it, which is there are 30
20 fish health events associated with the high risk
21 diseases that were identified by Dr. Kent, per
22 year.
23 DR. SHEPPARD: I don't disagree that that may be what
24 Dr. Korman's testimony was. And it's based on Dr.
25 Kent's opinion, as to what is a high risk disease.
26 Q Well, let me ask you then, quite aside from Dr.
27 Kent. I've looked through your diagnoses and
28 there's a fair number per year of the diagnosis of
29 an active infection at the population level.
30 Would you care to guess how many?
31 DR. SHEPPARD: No, I would care not to guess.
32 Q All right. Well, is it less than 30, or somewhere
33 in that vicinity?
34 DR. SHEPPARD: I think I'm lost in your question, Mr.
35 McDade. One more time please.
36 Q Well, let me try this a different way. Infections
37 at the farm level, that is, active disease
38 infections at the farm level happen every year on
39 the 100 or 120 fish farms that are operating in
40 B.C., correct?
41 DR. SHEPPARD: Yes.
42 Q And they happen despite the best efforts by fish
43 farms to avoid that happening.
44 DR. SHEPPARD: If that's a question, we have sentinel
45 animals inside the cages that tend to reflect what
46 is -- what they are exposed to within the
47 ecosystem, and by virtue of that combination of

1 factors, the sentinel Atlantic salmon will express
2 infections and disease, as would any other
3 population of animals that exists in the
4 environment.

5 Q Well, is it fair to say the Fish Health Management
6 Plans dictate a bunch of strict rules for the
7 farmers to try and avoid infection, but following
8 those rules is no guarantee that infection doesn't
9 occur. It reduces it but it doesn't prevent it.

10 DR. SHEPPARD: Yes, the goal is -- the risk can never
11 be zero. There's always a risk, and then so the
12 Fish Health Management Plan is designed to
13 minimize those risks as best we can as managers of
14 those animals in an open environment.

15 Q No, I'm actually not talking about risk here. I'm
16 talking about results. If one looks back over the
17 last year or five years or ten years, despite
18 following all the procedures in the Fish Health
19 Management Plans, fish farms do get disease.

20 DR. SHEPPARD: That's correct, and the -- and the
21 prevalence of those diseases has been declining
22 precipitously since the beginning of fish farming
23 in British Columbia.

24 Q All right. And in the last 20 years we've had
25 major epidemics of IHN three times.

26 DR. SHEPPARD: Correct.

27 Q And we've had a major epidemic of plasmacytoid
28 leukemia in the early '90s.

29 DR. SHEPPARD: I would disagree with that statement.

30 Q You don't think we did?

31 DR. SHEPPARD: No.

32 Q What do you think those fish died of?

33 DR. SHEPPARD: That wasn't the question. Your
34 characterization of the question was a "major
35 epidemic". It was a finding of a clinical
36 syndrome that is quite natural in Pacific salmon
37 of British Columbia, and it was -- it became a
38 point of interest for some researchers and it was
39 monitored very closely. And since then we see
40 next to no signs of plasmacytoid leukemia in
41 chinook or coho salmon.

42 Q Well, you're not diagnosing it, but -- well, let's
43 come to this. I understood that what Dr. Kent and
44 Dr. Stephen were working with was a disease that
45 they said killed 50 to 80 percent of the fish at
46 some farms; isn't that right?

47 DR. SHEPPARD: I don't recall the cumulative loss

1 specifically to marine anaemia. As I said this --
2 or, I'm sorry, that the plasmacytoid leukemia,
3 because in my recollection back in the day when I
4 was examining those very same animals, the
5 presence of plasmacytoid leukemia was often
6 concomitant with bacterial kidney disease, and
7 bacterial infections that which -- which are very
8 overlapping symptoms. So, no, marine anaemia, as
9 you say, was not -- or plasmacytoid leukemia was
10 not the cause, the sole cause of mortality.
11 Q Well, have you read Dr. Kent's papers?
12 DR. SHEPPARD: Yes.
13 Q Do you disagree with them?
14 DR. SHEPPARD: Yes.
15 Q Oh, I see. Have you published -- have you seen
16 any peer-reviewed literature that contradicts
17 them?
18 DR. SHEPPARD: Yes, Dr. Stephen's thesis.
19 Q All right. We have Dr. Stephen's thesis. Dr.
20 Marty, what do you think those 50 to 80 percent of
21 the fish died of?
22 DR. MARTY: I haven't examined those, so I can't
23 comment.
24 Q Well, Dr. Marty, you say that, as I understood it,
25 that marine anaemia is often associated with BKD.
26 DR. MARTY: No, I said that interstitial cell
27 hyperplasia, the ISH, is often associated with
28 BKD.
29 Q And as I understood the disease that Dr. Kent was
30 talking about, plasmacytoid leukemia, it would
31 weaken fish but might not often be the cause, the
32 actual cause of death. Is that fair?
33 DR. MARTY: I don't recall specifically how Dr. Kent
34 described that.
35 Q All right. Let's leave that. Dr. McKenzie, do
36 you agree that despite the best efforts you might
37 make under a Fish Health Management Plan, some of
38 your facilities are inevitably going to get some
39 disease?
40 DR. MCKENZIE: As Dr. Sheppard said, there is a natural
41 background disease level that we will see, and
42 just like any salmonid species in the same
43 waterway, we would see at some level those
44 diseases: whether it's an outbreak, no; presence
45 of a pathogen, yes.
46 Q Some outbreaks are -- some outbreaks have occurred
47 and will continue to occur, won't they.

1 DR. McKENZIE: I would hope they would not.
2 Q NO.
3 DR. McKENZIE: But they have.
4 Q They have. And I don't know who the right person
5 to ask this question of, but I'll try you, Dr.
6 McKenzie, and maybe you, Dr. Marty. Where those
7 disease outbreaks have occurred, has there been a
8 -- is that a contravention of the Fish Health
9 Management Plan?
10 DR. McKENZIE: The Fish Health Management Plan doesn't
11 specify you can or cannot have a disease finding.
12 It's a process, it's a way of managing to mitigate
13 disease. So it would be hard to be in
14 contravention of that.
15 DR. SHEPPARD: If I may comment, Mr. McDade, to help
16 you, is that within the Fish Health Management
17 Plan itself there is a section that is outlined
18 and headed as an outbreak -- management outbreak
19 control procedures. In light of the fact that,
20 yes, the natural virus IHN does appear
21 occasionally, and these indigenous pathogens can
22 sometimes under certain conditions be defined as
23 an outbreak. Now, the definition of an outbreak
24 varies from individual to individual.
25 Q Well, right. But if you have an outbreak of IHN,
26 it's possible to have an outbreak of IHN without
27 being in breach of the Fish Health Management Plan
28 at all, right?
29 DR. McKENZIE: I guess I don't understand the question.
30 The Fish Health Management Plan is not a law or
31 something that -- again, it's a description of how
32 you do a process.
33 Q It's a --
34 DR. McKENZIE: So I don't understand how you could
35 breach something that doesn't give you boundaries
36 that you can or cannot do.
37 Q Well, I think that's what I'm getting at. The
38 Fish Health Management Plans don't prohibit
39 getting disease. They simply set out a process to
40 try and do some sensible things to avoid it.
41 DR. McKENZIE: But there's nothing that could prohibit
42 disease.
43 Q No.
44 DR. McKENZIE: There's no piece of paper that could do
45 that. So what the Fish Health Management Plans do
46 is they take all the effort possible to mitigate
47 risk.

- 1 Q All right. And once -- once you get a disease, if
2 you get an outbreak of a virus, the Fish Health
3 Management Plans, I'm going to suggest to you, set
4 a bunch of rules to avoid transmitting it to other
5 fish farms.
- 6 DR. MCKENZIE: Yes, the concept of biosecurity is a
7 paramount piece in fish health management in all
8 aspects, whether it be in hatcheries or in fish
9 farms.
- 10 Q And it sets out rules in extreme outbreaks for
11 quarantine, right?
- 12 DR. MCKENZIE: Again, these are mitigative steps that
13 you would take in any animal health or human
14 health.
- 15 Q Yes, but let's understand what quarantine is.
16 Quarantine is quarantine from other fish farms,
17 isn't it. You can't quarantine the wild salmon
18 that are swimming past the pen.
- 19 DR. MCKENZIE: Again, you control the risk that you can
20 to mitigate potential extension of that disease.
- 21 Q Right. But when the disease outbreak occurs,
22 there's nothing you can do to keep it from -- to
23 keep the pathogens from going out and going to the
24 wild salmon.
- 25 DR. MCKENZIE: Well, I disagree. The approach that
26 we've taken in the industry in the standards that
27 we have in place now, our outbreak management
28 plans are how do we remove those fish in the
29 quickest possible manner in order to mitigate any
30 potential release.
- 31 Q Are you telling me that the Health Management
32 Plans that have been filed in evidence require you
33 to take your fish out the day you find a disease?
- 34 DR. MCKENZIE: No, but there is -- there is agreement
35 that there are viral outbreak management
36 agreements within the industry that we have agreed
37 that they will be removed on that period of time.
38 And in the past, when there were disease
39 outbreaks, the government at the time asked for
40 them to be removed.
- 41 DR. SHEPPARD: And if I may clarify, Mr. McDade, or I'm
42 sorry, Mr. Commissioner, the example you're using
43 is IHN, which is a reportable disease under the
44 jurisdiction of the Canadian Food Inspection
45 Agency, which when it occurs, there's notification
46 immediately and they will dictate, if they can, to
47 remove that population of fish if it's an index

1 case.
2 Q So when --
3 DR. SHEPPARD: Or they may not. They have not made
4 that decision yet, as far as I know.
5 Q Let me ask you, Dr. Sheppard, when you get a
6 diagnosis of active at the population level, what
7 do you do about it?
8 DR. SHEPPARD: Again, Mr. McDade, would you use a
9 specific example, because it depends on the -- the
10 infectious agent.
11 Q Well, what if it's BKD, what would you do?
12 DR. SHEPPARD: If it's BKD I will note it and record it
13 and report it.
14 Q And so you have no obligation to actually regulate
15 that, or go in and take the fish out?
16 DR. SHEPPARD: No, there's no regulation over how much
17 or how little BKD you can have in a population.
18 If it's a new -- if I feel it's a new finding, and
19 this has happened in the past, and this might be a
20 criticism in one of the exhibits that we -- has
21 already been presented in terms of that third
22 party assessment by Dr. Parmley.
23 Q Yes.
24 DR. SHEPPARD: It would be that the communication part
25 has not occurred, when in fact I would contest
26 that statement, because if we make a finding,
27 whether it be at the histopathological cellular
28 level, or whether it's at the farm level when
29 we're observing the animals, there is and has been
30 an immediate communication with the attending
31 veterinarian to assure us and assure them that
32 they have been monitoring this, or is it in fact
33 that we have found the first case. More often
34 than not, the attending veterinarian is well aware
35 of what's going on and is well into the management
36 of the situation.
37 Q Let me ask you this. In the Fish Health
38 Management Plans, either in the provincial one
39 that's been ongoing for a number of years, or in
40 the proposed federal one, are there any special
41 rules where the farm with the disease is in the
42 migratory path of the wild salmon?
43 DR. SHEPPARD: I'm sorry, would you repeat the
44 question?
45 Q Are there any special rules for farms within the
46 migratory path of the wild salmon.
47 DR. SHEPPARD: Not in so many words.

1 Q No. So no particular extra reason to take action.
2 DR. SHEPPARD: AS I said, there's an outbreak
3 management protocol within the Health Management
4 Plans, and so the -- which would include
5 everything from increasing reporting to increasing
6 the biosecurity measures to ultimately a
7 functional quarantine.

8 Q And none of that will help the wild salmon, will
9 it, not one of those things.

10 DR. SHEPPARD: I think those measures, Mr. McDade, are
11 in place to minimize the risks of that situation
12 and minimize the risks not only to the fish within
13 the cages, but also to the ecosystem outside of
14 those cages.

15 Q And just one final question to Dr. McKenzie. Dr.
16 McKenzie, you told us what great care is taken to
17 keep ISA away from the eggs. Your company is
18 Cermaq, right?

19 DR. MCKENZIE: I work for Mainstream Canada.

20 Q Whose parent company is Cermaq.

21 DR. MCKENZIE: That is correct.

22 Q Who is the very company that allowed ISA to get
23 into the eggs in Chile, right?

24 DR. MCKENZIE: That's not correct. I would not agree
25 with that.

26 Q The Chilean outbreak of ISA came from Norway?

27 DR. MCKENZIE: There are research papers that have
28 indicated that, yes.

29 Q And there's a Cermaq paper that's indicated that.

30 DR. MCKENZIE: There is a Ph.D. student, or a Master's
31 at the time, who has wrote a paper, who does work
32 for Cermaq, but that is not a Cermaq paper.

33 Q Can I just -- I'll enter that as an exhibit and
34 then I'll sit down. And that's, Mr. Lunn, I think
35 that's Tab 16 of the Project 5 list.

36 THE REGISTRAR: Exhibit 1687.

37

38 EXHIBIT 1687: Vike, Preventative fish health
39 work, Cermaq, April 27, 2011
40

41 MR. McDADE:

42 Q Perhaps over the break we can pull that -- that's
43 the paper you're referring to, Dr. McKenzie?

44 DR. MCKENZIE: Yes.

45 MR. McDADE: Thank you. Thank you, gentlemen.

46 MR. MARTLAND: Thank you. Mr. Commissioner, the next
47 counsel is counsel for the Conservation Coalition

1 with a 20-minute allocation. We're sort of down
2 to the wire on the day. I'm in your hands,
3 though, as to whether Mr. Leadem starts now or
4 whether we take a short break and...

5 THE COMMISSIONER: We'll start.

6 M. MARTLAND: Thank you. Mr. Leadem.

7 MR. LEADEM: For the record, Leadem, initial T.,
8 appearing as counsel for the Conservation
9 Coalition. You may know some of my clients as
10 CAAR and Watershed Watch and these are individuals
11 or groups I think that you've dealt with in the
12 past.
13

14 CROSS-EXAMINATION BY MR. LEADEM:
15

16 Q I want to begin with Commission document number
17 11, if I could. Tab 11 from Commission -- there
18 we go. This is a Draft Fish Pathogen and Pest
19 Treatment Regulation. I'm going to ask you, Mr.
20 Swerdfager, if you recognize this particular
21 draft.

22 MR. SWERDFAGER: It's actually not a draft regulation.
23 It's a draft of a -- if you scroll down just a
24 little bit, we've got the similar heading on quite
25 a number of these things, but I think it's a
26 beginning of some of our preparatory work for if
27 we were to introduce or develop a regulation. We
28 do not at this point have a draft regulation.

29 Q Right. And that was going to be my second point.
30 This proposed regulation, or this area would cover
31 the application of SLICE and agents such as that
32 in an aquaculture situation, would it not?

33 MR. SWERDFAGER: No, it would not. Essentially this
34 regulation, which does not exist in draft in any
35 way, shape or form, is something that we've given
36 thought to for use mostly for the application in
37 Eastern Canada of pesticides, is primarily what
38 its use would be for if it were to be developed.
39 And secondarily in several of the lakes in
40 Ontario, and parts of Quebec, for disease control
41 purposes fish are destroyed by means other than
42 fishing, which today is a potential contravention
43 of s. 32 of the **Fisheries Act**. And so if this
44 regulation were to be developed, it would allow
45 for the destruction of fish by means other than
46 fishing.

47 Q I'm a bit confused, because when I look down at

1 the description and the issues under the first
2 page there under "B", if you can just highlight
3 that, please, Mr. Lunn. It says:

4
5 Chemical treatments for fish pests and
6 pathogens in farmed or wild fish.
7

8 And then a bullet, and it says:

- 9
10 • For [example] drugs regulated under the **F&DA**
11 for use in fish pathogen and pest treatment
12 including medicated feed such as the use of
13 SLICE® to combat sea lice (s. 36)
14

15 MR. SWERDFAGER: Mm-hmm.

16 Q So that would be not a topical application, but it
17 would be an adjustive application; is that what
18 you're saying?

19 MR. SWERDFAGER: Yeah, and part of the reason that it's
20 perhaps somewhat unfortunate that this is the
21 focus of discussion. This, again I emphasize,
22 that the regulation doesn't exist even in here's
23 the proposed title context. But this discussion
24 document, which was developed quite some time ago,
25 at one point we were thinking it would capture the
26 use of SLICE. We no longer do.

27 Q So am I correct, then, in saying we have s. 36 of
28 the **Fisheries Act**, which prohibits the deposition
29 of a deleterious substance. Would SLICE be
30 covered within the confines of that provision?

31 MR. SWERDFAGER: We think not, that we have never
32 treated the use of SLICE or other in-feed
33 treatments - I shouldn't focus necessarily on
34 SLICE, there are other in-feed treatments, as well
35 - as a s. 36 deleterious substance.

36 MR. LEADEM: All right. Could this be marked as the
37 next exhibit please.

38 THE REGISTRAR: Exhibit 1688.
39

40 EXHIBIT 1688: Fisheries and Oceans Canada,
41 Proposed Fish Pathogen and Pest Treatment
42 Regulations DRAFT
43

44 MR. LEADEM:

45 Q Now, I want to turn to you, Dr. McKenzie, and I
46 want to look at and examine with you some
47 spreadsheets which I think are B.C. Salmon Farmer

1 spreadsheets. for sea lice. And if I could have,
2 I think it's Tab 75 of the Conservation Coalition.
3 And if you can use the tab for "Total Lice 2007".
4 I don't know whether you would be familiar with
5 this or not, Dr. McKenzie, and if you're not, I
6 can ask perhaps Dr. Marty or some other person on
7 the panel.
8 DR. MCKENZIE: I'm familiar with the table.
9 Q Thank you. If I could ask, Mr. Lunn, to pull up
10 line 59, scroll down to line 59. And what I'm
11 interested in examining with you is "K", which I
12 understand is the "Motile Leps" column.
13 DR. MCKENZIE: Okay.
14 Q Are you still with me?
15 DR. MCKENZIE: Yes.
16 Q And then if we look at the number of fish that are
17 sampled, that would be column "I", right? So
18 that's usually 20, I believe.
19 DR. MCKENZIE: Yes.
20 Q So it's usually 20 fish and then out of those 20
21 fish there's then a total of motile *Leps* that are
22 counted; is that -- do I have that right? Is that
23 how it works?
24 DR. MCKENZIE: Yes. We classify them based on 20 fish
25 out of a single pen.
26 Q Right.
27 DR. MCKENZIE: And these would be the total number of
28 lice.
29 Q All right. So then if I do a simple arithmetical
30 calculation, 20 fish which have 66 motile *Leps* on
31 them, I get 3.3.
32 DR. MCKENZIE: Yes.
33 Q Right? And then if I look at treatment column "N"
34 and "O", I see that there's no treatment for that.
35 That's what that reflects, does it not?
36 DR. MCKENZIE: That's what it says.
37 Q Okay. And so my understanding of the -- I don't
38 know whether it's a protocol or when you apply
39 SLICE, but my understanding is, is that it's done
40 for the period of time, roughly March to the --
41 beginning of March to the end of June when the
42 outmigration of smolts is occurring. And that if
43 the average number of motile *Leps* hits 3 or
44 higher, then usually SLICE is applied; is that
45 correct?
46 DR. MCKENZIE: That's usually, yes.
47 Q And it was not done in this case.

1 DR. MCKENZIE: Looking at the numbers that proceed in
2 the following months, I would say there was a
3 SLICE treatment. I would be surprised, but it is
4 certainly not recorded here.
5 Q Okay.
6 DR. MCKENZIE: Because we have our -- the responses we
7 can have to elevated numbers trigger a treatment,
8 or harvest, or increased sampling, but you do see
9 the motile numbers over the proceedings months --
10 proceeding two months drop right down to 1, and
11 that's not a natural occurrence.
12 Q And I'm further confused a little bit about how
13 SLICE may be applied or not applied in farms.
14 Because if I use that same table, and I apologize,
15 Mr. Lunn, but if you can go down to line 253 and
16 look across, it looks as though SLICE is being
17 applied in this situation, does it not?
18 DR. MCKENZIE: Yes.
19 Q And it looks as though 20 fish were sampled, the
20 "Motile Leps" column "K" is 35, and my rough
21 arithmetical calculation is that that's 1.7, in
22 other words...
23 DR. MCKENZIE: Yes, lower than 3.
24 Q Lower than 3, but --
25 DR. MCKENZIE: Yes.
26 Q -- you still see an application of SLICE.
27 DR. MCKENZIE: Yes.
28 Q All right.
29 DR. MCKENZIE: And the rationale behind that, as I --
30 would be that these fish, as you can see, they are
31 no longer sampled after July, so they most likely
32 were going to be harvested. So in order to meet
33 withdrawal periods associated with treatments, and
34 in order to take the precautionary approach that
35 those numbers would hit 3 in April or May, when
36 you would not be able to do a treatment, a
37 treatment is done earlier as a trigger in order to
38 ensure that we don't hit those levels.
39 MR. LEADEM: Okay. Could we have this marked. And
40 before we do so and give it a number, Conservation
41 documents from Tab 71 through 78, Mr.
42 Commissioner, are all B.C. Salmon Farmers Lice
43 documents, and I would propose that we simply mark
44 them in sequence. And in this case we've got it
45 right chronologically, so we go from the latest
46 ones to the -- or I should say the earliest ones
47 to the latest ones. So if I could suggest, Mr.

1 Giles, that Tab 81 be marked as the next exhibit
2 in these proceedings.

3 THE REGISTRAR: That will be 1689.

4
5 EXHIBIT 1689: Excel spreadsheet re Lice,
6 2003, BCSFA

7
8 MR. LEADEM: And then 72 would be 1681.

9 THE REGISTRAR: Sorry, which tab?

10 MR. LEADEM: Tab 72 of the --

11 MR. MARTLAND: My note was that Tab 71 would be Exhibit
12 1689.

13 MR. LEADEM: Oh, I'm sorry.

14 MR. MARTLAND: Tab 72 would be 1690, and so forth.

15 MR. LEADEM: That's right.

16 THE REGISTRAR: Yes, 1690, Tab 72.

17
18 EXHIBIT 1690: Excel spreadsheet re Lice,
19 2004, BCSFA

20
21 MR. LEADEM: And Tab 73 would be 1691, all the way
22 through.

23
24 EXHIBIT 1691: Excel spreadsheet re Lice,
25 2005, BCSFA

26
27 THE REGISTRAR: Tab 74, 1692.

28
29 EXHIBIT 1692: Excel spreadsheet re Lice,
30 2006, BCSFA

31
32 THE REGISTRAR: Tab 75, 1693.

33
34 EXHIBIT 1693: Excel spreadsheet re Lice,
35 2007, BCSFA

36
37 THE REGISTRAR: Tab 76, 1694.

38
39 EXHIBIT 1694: Excel spreadsheet re Lice,
40 2008, BCSFA

41
42 THE REGISTRAR: Tab 77, 1695.

43
44 EXHIBIT 1695: Excel spreadsheet re Lice,
45 2009, BCSFA

46
47 THE REGISTRAR: Tab 78, 1696.

1 EXHIBIT 1696: Excel spreadsheet re Lice,
2 2010, BCSFA
3

4 MR. LEADEM: Thank you.

5 Q One further question to you, Dr. McKenzie. With
6 respect to the treatment for lice, when it -- when
7 the hit is above 3, my understanding is that
8 another way you can deal with that situation is by
9 harvesting; is that correct? You can simply
10 remove the -- start removing fish from the pens.

11 DR. MCKENZIE: That is another alternative, assuming
12 the fish are of size, and that you can actually
13 remove them in a timely manner. In the case of
14 harvesting, it's not always the best option
15 because it can take several months.

16 Q Now, I want to come back to you, Mr. Swerdfager,
17 and finish off some issues that I was dealing with
18 you before. So you other gentlemen can rest easy
19 for a bit, and Mr. Swerdfager and I are going to
20 have a discussion about communications again.

21 MR. SWERDFAGER: Oh, good, the thesaurus for "promote"
22 again?

23 Q No, I haven't -- I'm not going to belabour the
24 "promote" part, Mr. Swerdfager. I pretty well
25 have your evidence on that point. With all due
26 respect, you're what my mother used to call a very
27 smooth talker.

28 But I'll go to Conservation Tab 61, if I
29 could. Now, my understanding of this document,
30 and you recognize this document?

31 MR. SWERDFAGER: It's the same one we had up yesterday,
32 I think, eh?

33 Q I don't think so.

34 MR. SWERDFAGER: Or is it a different one?

35 Q No, it should be a different one. The one
36 yesterday --

37 MR. SWERDFAGER: Could we just maybe scroll to the
38 content a little bit. We had one that looked to
39 me at least quite similar yesterday.

40 Q Okay. This one is entitled DFO Aquaculture
41 Communications Overview, and if I take you to the
42 "Introduction" I think I can perhaps prompt your
43 memory.

44 MR. SWERDFAGER: Yes.

45 Q "Introduction" says:

46
47 The Government of Canada, through its new

1 initiative **Aquaculture 2012**, is looking to
2 strengthen public confidence, increase
3 transparency --

4
5 - which you talked about yesterday -

6
7 -- and build strategic interjurisdictional
8 partnerships across the country...
9

10 MR. SWERDFAGER: Yes.

11 Q Et cetera. And then the third paragraph down:

12
13 Mike Randall Communications was hired to
14 conduct a series of interviews across the
15 country with key industry stakeholders...
16

17 Does this prompt your memory now?

18 MR. SWERDFAGER: Yes, it does, thank you. It's a
19 document that was produced by our Communications
20 Directorate, in other words, as it says there,
21 Mike Randall, who is a communications consultant
22 based in Nova Scotia, I think - it doesn't matter,
23 I suppose - was contracted, it says that he was
24 asked to talk to key industry stakeholders. In
25 fact, that's not quite correct. He did talk, as I
26 recall, to some industry people, but the majority
27 of his conversation, so to speak, was actually
28 with DFO employees.

29 Q Right. That's my understanding, as well.

30 MR. SWERDFAGER: Yes.

31 Q Could we have this marked as the next exhibit,
32 please.

33 MR. SWERDFAGER: I should add he did speak, as well, I
34 don't have -- maybe in the appendix of the report
35 itself, I know he spoke with a number of
36 environmental organizations, and I mean I can't
37 list the names, so to speak, but predominantly the
38 focus was internal to the Department.

39 MR. LEADEM: Right.

40 THE REGISTRAR: Tab 61 will be marked as 1697.
41

42 EXHIBIT 1697: DFO Aquaculture Communications
43 Overview, July 7, 2008
44

45 MR. LEADEM:

46 Q And I just want to take you very briefly to the
47 third -- or, sorry, the fifth page of that

1 document, and you'll see a heading "Pacific
2 Region" and then underneath that in italics, "*Sr.*
3 *Management*". So there's no attribution to who's
4 actually making these statements, as I understand
5 it. But it's fair to say, is it not, Mr.
6 Swerdfager, that these statements are being made
7 by senior management within Pacific Region?
8 MR. SWERDFAGER: These are Mike's summary -- Mike
9 Randall's summary of comments that he has picked
10 up and heard. I can't remember to be honest who
11 he interviewed in senior management, but certainly
12 it's probably fair to say that this is his
13 characterization of what he was told by senior
14 managers out here.
15 Q All right. And were you interviewed by Mr.
16 Randall?
17 MR. SWERDFAGER: I was, in a number of -- my role was a
18 little bit not so much a participant. I was aware
19 that the contract had been let to him. So to some
20 degree I had a role at the early stage in
21 designing some of the contract work, but I wasn't
22 interviewed as part of it, *per se*, I guess, is how
23 I would put it.
24 Q Would you fit under the category of "National
25 Headquarters"?
26 MR. SWERDFAGER: I would, yes.
27 Q All right. If we can look at page 11. I'm not
28 sure of this acronym, MINO, M-I-N-O.
29 MR. SWERDFAGER: MINO is the Minister's office.
30 Q Oh, okay. That's not you, though.
31 MR. SWERDFAGER: That is not me, no.
32 Q What about if we flip the page, "Aquaculture
33 Management"?
34 MR. SWERDFAGER: So those would be -- I know he
35 interviewed the directors that reported to me, and
36 I think he also talked to -- well, we had them
37 listed separately, regionally. I know he talked
38 to Aquaculture Management staff, as well.
39 Q I can't resist this one. You know where I'm
40 going.
41 MR. SWERDFAGER: "Marketing is not our role", is that
42 where you're going to get to?
43 Q Well, the "rock star" comment that you see in the
44 middle of the page there.
45 MR. SWERDFAGER: Well, I think that this is reflective
46 of the discussion internally, now externally. I
47 think that the message here certainly is that the

1 Department had, I think, for a very long time,
2 been quite passive in its communication
3 activities. And the notion here is that I know
4 we've focused on British Columbia only, and those
5 are not my words, of course, but I think that the
6 non-governmental organization community has been
7 very, very successful in communicating its views
8 on aquaculture and the Department had taken an
9 extremely passive approach, and that's the result.

10 Q I just want to flip back to number 10 because
11 there is some serious message in here that I want
12 to get across.

13 MR. SWERDFAGER: Mm-hmm.

14 Q And if we look at page 10, five bullets down. I
15 gather there were some suggestions that were
16 coming forward as a result of this communication
17 and as a result of all these interviews.

18 MR. SWERDFAGER: Mm-hmm.

19 Q And the one that I focus upon, because I represent
20 these clients, are:

- 21
- 22 • We need to engage in dialogue with the ENGOs
- 23 to show we're taking steps to address
- 24 concerns
- 25

26 How are you doing that? How are you -- how do you
27 propose to do that?

28 MR. SWERDFAGER: Well, your clients may have mentioned
29 to you that on four occasions that I can remember
30 I proposed the establishment of a B.C. Aquaculture
31 dialogue forum. I sought CAAR engagement quite a
32 number of times to establish some kind of
33 mechanism that would bring people together from
34 all sides of the issue. I tried it two different
35 ways. I tried to do this at the national scale,
36 and that was a bad idea. It just became too
37 cumbersome. I tried that a number of times, and
38 that dog won't hunt.

39 So I backed up and tried to focus only on
40 British Columbia. I spent quite a bit of time
41 talking to CAAR with a view to trying to establish
42 some kind of a forum, through which we could bring
43 together people working in industry and the
44 environmental community, First Nations and
45 governments.

46 And I would say in my time with AMD, this is
47 probably one of the more frustrating experiences

1 during that period, and I will wrap up, but I
2 tried very hard to get people to engage. And
3 essentially at the beginning the industry was so-
4 so on it, and then they changed their mind, and
5 then the ENGOs didn't want to, and then the
6 government, I couldn't get people around that
7 table. So we did make quite a number of steps to
8 cause a forum to come into being, and sadly, from
9 my perspective, we did not succeed.

10 Q All right. But from the perspective of my
11 clients, they were more than willing to engage you
12 at that level, were they not?

13 MR. SWERDFAGER: No, they weren't.

14 Q And who specifically was not willing to engage
15 you?

16 MR. SWERDFAGER: The discussion that I had was usually
17 a mix of the members of CAAR, so the people
18 involved on occasion would change from time to
19 time, but for the most part I dealt with David
20 Lane, I dealt with John Waring, Jay Ritchlin. I
21 forget to be honest who came a number of times
22 from the Living Oceans Society, the people changed
23 a number of times. I think Samantha works for
24 them, if I'm not mistaken. Catherine Stewart, I
25 think was in there a little bit, and then from
26 time to time a few others. And essentially the
27 proposal that I made to them a number of times -
28 oh, Craig Orr, as well, was involved a couple of
29 times - was various iterations. At one point I
30 suggested, as well, that we would be happy to let
31 a small contract, to provide staff support for
32 them to organize such a thing, and invite us to
33 it, if you will, so that it wasn't our show, if
34 you will, and I didn't get any uptake on any of
35 that.

36 And then at various stages over the course of
37 this dialogue, which went on for a period of time
38 -- oh, I also had Greenpeace, Sarah King involved
39 a little bit, which I know is -- actually I don't
40 know if she's one of your clients or not. But so
41 all this to say I engaged quite a number of people
42 and from time to time their positions changed.
43 There was willingness to do something of this
44 nature, and then the other parties didn't. And
45 frankly, I gave up.

46 Q When you say "the other parties", do you mean
47 industry representatives?

1 MR. SWERDFAGER: Well, for a little while there was a
2 sense that if I -- if you get -- the provincial
3 government for a while was extremely reluctant to
4 participate in a dialogue with this because they
5 were engaged at that point in a very active
6 dialogue with First Nations and they didn't want
7 to be drawn into another forum with ourselves and
8 with industry. And then for a little while CAAR
9 took very much the view that we'd been think-
10 tanked and dialogued to death, we don't want to
11 participate in this one. So they -- the five or
12 six corners, if you will, of the playing field
13 kept shifting on me quite a bit.

14 MR. LEADEM: All right. My time is up, Mr.
15 Commissioner.

16 MR. MARTLAND: Mr. Commissioner, I wonder if I could
17 propose a five-minute break as opposed to the
18 longer break. I know I keep doing that, but it
19 will allow us to stay on our schedule.

20 THE COMMISSIONER: If I could just ask my hearing room
21 colleagues in addition to counsel, Mr. Lunn and
22 Mr. Giles and Madam Reporter, if we could sit
23 through until 4:00 and then break at that point?
24 If there's discomfort with that, we'll break now,
25 but otherwise that's my suggestion.

26 It looks like everyone's in agreement with
27 that. Thank you.

28 MR. MARTLAND: Thank you, Mr. Commissioner. In that
29 case, I have five minutes now for counsel for
30 Areas D and B.

31 MS. PACEY: Thank you, Mr. Commissioner. Thank you,
32 panel. My name is Katrina Pacey, P-a-c-e-y,
33 initial K., counsel for Areas D and B.

34
35 CROSS-EXAMINATION BY MS. PACEY:

36
37 Q Dr. McKenzie, a couple of questions for you in
38 terms of the testing of eggs. My first question
39 is whether or not you are able to - and whether or
40 not you do - test for the parvovirus?

41 DR. MCKENZIE: As far as I'm aware, there is no test
42 for parvovirus so, no.

43 Q And my second question is whether, in the testing
44 of eggs, you test for marine anaemia?

45 DR. MCKENZIE: There is no specific test for marine
46 anaemia. As Dr. Marty said, it's a clinical
47 diagnosis in fish, not in eggs. It's not

- 1 expressed in eggs.
2 Q And my final question is for any of the panellists
3 from DFO that may be able to answer whether or not
4 there's any auditing going on at the moment of the
5 fish farms themselves.
6 DR. SHEPPARD: I can certainly answer that, and yes,
7 the Department of Fisheries and Oceans has been
8 active since April 1st of this year to emulate a
9 very similar program as to what was offered by the
10 -- in the provincial government. But that said,
11 we're ramping up. It's taken -- we've had some
12 training and some resource bottlenecks, but we're
13 -- our aim is to achieve the status quo that was
14 set by the province by the end of this year.
15 Q And perhaps I can just -- oh, did you have
16 something to add?
17 MR. SWERDFAGER: I was just going to make one small
18 addition to that. The Conservation and Protection
19 Program is now fully established in the region as
20 well. There are now a total of 12 fishery
21 officers whose primary focus is on aquaculture.
22 So they are not typically captured under the
23 terminology you used of "audit". So they are not
24 doing audits, per se, but they are carrying out
25 compliance functions as part of the overall
26 program to ensure compliance with the regulations
27 and the conditions of licence.
28 Q So just to make sure that I'm clear of your
29 evidence, is that just clarifying the evidence of
30 your colleague, or is that correcting?
31 MR. SWERDFAGER: It's adding --
32 Q Adding to.
33 MR. SWERDFAGER: -- to what he spoke of, yeah.
34 Q So when you use the term "active", do you have a
35 sense of numbers in terms of audits since the
36 April 1st date?
37 DR. SHEPPARD: And again, these audits, are you
38 specifically referring to fish health or sea lice
39 audits?
40 Q To any audits relating to fish farms disease and
41 sea lice, yes.
42 DR. SHEPPARD: Well, then, I will respectfully add to
43 Mr. Swerdfager's comments too, because there is
44 also an environmental team that, again, audits and
45 monitors benthic situations around the farms as
46 well, and they began again this summer as a field
47 season.

1 But specifically to -- I can answer the fish
2 health audits. Our goal initially was to --
3 again, normally, we would audit 30 farms for fish
4 health and approximately 12 or 15 for sea lice.
5 Our initial start-up was to monitor for 15 fish
6 health in the first -- sorry, second quarter --
7 that's April 1st for three months. So there were
8 12 fish health audits completed and 15 sea lice
9 audits completed, and now we're into the next
10 quarter and our goal is to achieve 25 fish health
11 audits.

12 Now, since we're past the migration season,
13 we're going to probably audit somewhere in the
14 neighbourhood of five to ten sea lice assessments.

15 MS. PACEY: Thank you. Those are my questions.

16 THE COMMISSIONER: Thank you, Ms. Pacey.

17 MR. MARTLAND: Thank you, Mr. Commissioner. I have
18 counsel for the First Nations Coalition, 15
19 minutes.

20 MS. GAERTNER: For the record, Brenda Gaertner and,
21 with me, Leah Pence, for the First Nations
22 Coalition.

23
24 CROSS-EXAMINATION BY MS. GAERTNER:

25
26 Q Mr. Swerdfager, we have to pick up where we left
27 off this morning if we may for a few minutes, and
28 if I manage to get what I need to accomplish with
29 you in about ten minutes, I have a couple of
30 questions for the whole panel. So we'll do the
31 others first if we could

32 MS. GAERTNER: In response to my friend Mr. Taylor's
33 comments that I had chosen not to put the entire
34 record between the UBCIC and the Department of
35 Fisheries and Oceans and, in particular, letters
36 to the Minister Shea. I have those documents,
37 Commissioner, and I'm going to tender them now.
38 On March 30th, there was a letter from UBCIC to
39 Minister Shea. I propose that that be the next
40 exhibit.

41 THE REGISTRAR: Exhibit 1698.

42
43 EXHIBIT 1698: Letter from UBCIC to Minister
44 Shea dated March 30, 2010

45
46
47 S. GAERTNER:

1 Q On July 15th, there was a letter from UBCIC to
2 Minister Shea. I propose that that be Exhibit
3 1699.

4 THE REGISTRAR: So marked.

5
6 EXHIBIT 1699: Letter from UBCIC to Minister
7 Shea dated July 15th, 2010
8

9 MR. LUNN: That's July 20th, I'm sorry.

10 MS. GAERTNER: July 15th, 2010 is the next -- oh, July
11 20th, sorry. My error. And then there's a letter
12 -- oh, no, I'm sorry, we're getting mixed up. I'm
13 going to too fast. Our Tab 23 --

14 MR. LUNN: Thank you.

15 MS. GAERTNER: -- there is a letter July 15th from
16 UBCIC to Minister Shea.

17 MR. LUNN: Yes.

18 MS. GAERTNER: That would be 1699. And then --

19 THE REGISTRAR: That's Tab 23?

20 MS. GAERTNER: That's our Tab 23. Then July 20th,
21 2010, there's a letter from Minister Shea to UBCIC
22 in response to their March 30th letter. Can I
23 have that marked as 1700?

24 THE REGISTRAR: 1700.

25
26 EXHIBIT 1700: Letter from Minister Shea to
27 UBCIC dated July 20, 2010 in response to
28 March 30 letter
29

30 MS. GAERTNER: On August 26th, 2010, there's a letter
31 from UBCIC to Minister Shea. Can I have that
32 marked as 1701?

33 THE REGISTRAR: So marked.

34
35 EXHIBIT 1701: Letter from UBCIC to Minister
36 Shea dated August 26, 2010
37

38 MS. GAERTNER: On October 20th, 2010, there's a letter
39 from Minister Shea to the summit which is at our
40 Tab 35. May I have that marked as 1702?

41 THE REGISTRAR: So marked.

42
43 EXHIBIT 1702: Letter from Minister Shea to
44 the summit dated October 20, 2010
45

46 MS. GAERTNER: And on October 20th, 2010, Minister Shea
47 also writes to the UBCIC and I'd have that marked

1 as 1703:

2 THE REGISTRAR: So marked.

3

4 Exhibit 1703: Letter from Minister Shea to
5 UBCIC dated October 20, 2010
6

7 MS. GAERTNER:

8 Q And just at the end of that document, if I may,
9 I'll take you to -- and you're familiar with these
10 documents, are you, Mr. Swerdfager?

11 MR. SWERDFAGER: I'm pretty familiar with them, they
12 went by fairly quickly, but they spark memories,
13 yes.

14 Q Thank you. I understand from your answers to your
15 counsel this morning that it's DFO's position that
16 there's ongoing consultation with First Nations
17 regarding these matters. And this was a letter
18 that was written in response partly to the short
19 time frames around the 60-day period, and of
20 course it was written after the 60-day period; is
21 that correct?

22 DR. SHEPPARD: That's correct.

23 Q And at the bottom of that letter, it says that you
24 intend to continue to --

25 MS. GAERTNER: I wonder if we could go to the next, on
26 page 3.

27 Q The Department's intent is to fund First Nations'
28 engagement in the development of the operation of
29 policies needed to manage the industry; is that
30 correct? That is the intention of the Department?

31 MR. SWERDFAGER: It is, and it is through the
32 aquaculture working group. I'm not up to date on
33 the current status of those activities, though.

34 Q And that would be better aimed at Mr. Thomson
35 tomorrow, if I may?

36 MR. SWERDFAGER: Fire away.

37 Q I shouldn't have used the acronym of AIM, I'm
38 sorry, I apologize for that.

39 MR. SWERDFAGER: That's okay. We're used to that in
40 DFO.

41 Q Well, you know what, it's hard in this category,
42 because I have to go so quickly.

43 MR. SWERDFAGER: Mm-hmm, I understand.

44 Q I actually would prefer a more improved dialogue
45 with you.

46 So I'm going to take you to a couple of
47 recommendations 'cause we just have a very short

1 period of time, and ask you what your thoughts are
2 on these recommendations. Do you agree that there
3 needs to be continued work in earnest to develop
4 and implement a transparent consultative process
5 at a Tier 1 and Tier 2 level between the
6 Department of Fisheries and Oceans, and First
7 Nations, and all of the substantive concerns
8 raised by First Nations, including developing a
9 scaled-approach to understanding what can occur at
10 the strategic level and what can occur at the
11 local level?

12 MR. SWERDFAGER: Can you explain to me Tier 1 and Tier
13 2, please?

14 Q Tier 1 is First Nations together, and Tier 2 is
15 First Nations and the Department of Fisheries and
16 Oceans.

17 MR. SWERDFAGER: Okay. I think that in general concept
18 and principle certainly we'd agree with the need
19 to do that sort of work together, whether we get
20 into the details of it here and now, probably not
21 so much. But certainly in concept, obviously,
22 we'd be open to that.

23 Q We don't have time to go to details. I just want
24 to give you an opportunity --

25 MR. SWERDFAGER: Yeah.

26 Q -- from a senior management position to respond to
27 these. Do you agree that we need to ensure that
28 both DFO and First Nations have the human and
29 financial capacities to engage in these
30 activities? Because it's very difficult if you
31 get started on these and can't keep them up. It
32 doesn't build trust; is that correct?

33 MR. SWERDFAGER: I took note of both aspects of that.
34 You noted that DFO needs the capacity in place as
35 do First Nations. I think that we've made
36 substantial progress in building some of the DFO
37 programming at this point, at this stage. I'm
38 very cautious, I guess, in expressing any view
39 that we should provide funding to First Nations
40 simply because that creates an expectation that in
41 fact we have it. At this point, we don't.

42 Now, having said that, I take your point and
43 that of one of your colleagues from late in the
44 day yesterday that clearly First Nations need some
45 capacity to be able to engage in dialogue working
46 with us and with others. I wouldn't necessarily
47 want it to flow from that, that DFO is making a

1 commitment to provide such funding.

2 Q Can you commit that no multi-year licences will be
3 issued by Canada for any existing finfish licences
4 along or potentially impacting the migratory route
5 of Fraser River sockeye salmon, until that
6 consultation process has been developed and
7 implemented in a meaningful way?

8 MR. SWERDFAGER: No, I'm not prepared to make that
9 commitment today.

10 Q And why is that?

11 MR. SWERDFAGER: I think that the idea of issuing
12 multi-year licences at some point is one we would
13 entertain. We are certainly open to that. We
14 have no plans to do that certainly for the next
15 go-round of licences, but I know that putting in
16 place the nature of the consultative process and
17 mechanism you describe can take a very, very long
18 time and often may be difficult to determine
19 exactly when it's in place effectively and so on.

20 So I wouldn't want to stack that up as a
21 precursor, if you will, to modernizing -- or
22 extending, rather, the licensing regime.

23 Q I want to take you to Exhibit 1652, which is that
24 report that Diane Urban did for First Nations
25 Fisheries Council, and I want to take you to the
26 third paragraph under heading 3.1.1 which is on
27 page 4. There she suggested an ecosystem approach
28 to the issue of siting. Third paragraph under --
29 there it is. The first of -- I'm going to just
30 read from the second sentence:

31
32 First a thorough understanding of the
33 characteristics and functions within an
34 ecosystem will be necessary.

35
36 And I don't --

37
38 Area specific indicators --

39
40 And you'll continue on, if you can. I think
41 you'll be able to read that quicker than I read it
42 aloud.

43 MR. SWERDFAGER: Mm-hmm.

44 Q Can you comment on this approach and whether this
45 would be a useful approach to addressing the issue
46 of siting, particularly including reviewing those
47 that have been sited along the migratory route?

1 MR. SWERDFAGER: I continue to experience great
2 difficulty with the concept of ecosystem-based
3 approach to management, and this is not germane
4 specifically to this. I think that the idea has
5 tremendous theoretical allure, and I think to
6 build an argument against it is probably
7 difficult. I think that the idea of integrating
8 multiple variables, multiple aspects of the
9 ecosystem, understanding it on a broad-based
10 multi-disciplinary scientific perspective makes an
11 awful lot of sense.

12 Translating that into specific management
13 decisions and actions is much more difficult.
14 Typically, many of the licensing decisions, for
15 example, or allocations, or when I used to work in
16 the Wildlife Service harvesting allocations and so
17 on, are binary issues. They're yes or no. It's
18 very difficult to translate that necessarily into
19 broad-based ecosystemic approaches.

20 So I apologize if this sounds smooth, but
21 making the transition between the concept of
22 ecosystem-based approaches into direct management
23 action is a challenge. So I endorse the general
24 concept, but with reservations about how to make
25 it real.

26 Q Yes, I actually find the frankness of that
27 challenge helpful, because when I hear - and I
28 heard it yesterday - this idea that we're going to
29 move quickly to an ecosystem approach and get the
30 IMAPs done and all of that, I don't think that's
31 realistic. Do you agree with me on that, that
32 it's going to take time to do this properly?

33 MR. SWERDFAGER: I would back up just a little bit if I
34 may. When I used to be the Regional Director of
35 the Conservation Branch of Environment Canada out
36 here, one of the things we tried to do was to
37 provide or present, rather, an ecosystem
38 characterization of the Georgia Basin, to
39 understand all its various dimensions in a variety
40 of scientific perspectives. That became a major
41 undertaking, one that took an awful lot of time.
42 I have some experience with it.

43 So when I think about that experience and
44 translate that into the aquaculture world, I
45 believe that the IMAP process can work if it
46 remains as focused as possible on aquaculture.
47 If, by contrast, by "ecosystem-based approach" we

1 start to say, okay, where does aquaculture fit in
2 the context, for example, of forestry development,
3 fisheries allocations, mining activities, et
4 cetera, et cetera, et cetera that some people may
5 feel, as part of the ecosystem-based approach,
6 that will not work.

7 I am confident that we will be able to take a
8 systems-based approach on the aquaculture scale,
9 though.

10 Q A systems-based approach on the aquaculture base
11 will require us looking at the migratory route of
12 the Fraser River sockeye salmon, though, and
13 that's going to be complex. Would you agree with
14 me on that?

15 MR. SWERDFAGER: Certainly it's a complex topic, no
16 doubt about that, and I --

17 Q So we need to be -- sorry.

18 MR. SWERDFAGER: -- agree with your fundamental point
19 that -- sorry -- that we're not just going to snap
20 our fingers and have it done.

21 But, as Mr. Thomson suggested yesterday,
22 often the most difficult step in these processes
23 is the first one, and we are going to take that in
24 October. We're going to launch -- or right in
25 around there anyway -- launch the development of
26 those processes, and we all will learn as we go.

27 Q And you'll work closely with First Nations in that
28 work?

29 MR. SWERDFAGER: Very much so, and not just with First
30 Nations. I know that wasn't your question, but
31 certainly with all people with interest in the
32 issues before us.

33 Q All right. I just want to take my last five
34 minutes and ask a broader question of all of the
35 panel.

36 Mr. Blair asked you whether the risk of
37 disease is manageable, and whenever I hear those
38 words, "risk of disease", I get a little bit
39 triggered from my first -- from my client's
40 prospective. You'll agree with me that risk
41 analysis and a risk assessment requires those who
42 wear the outcome of that risk to be part of the
43 decision-making process and the risk assessment,
44 Mr. Swerdfager?

45 MR. SWERDFAGER: I would agree in many respects, and if
46 I may just characterize, before we pass over to
47 the veterinarians, I think that certainly from my

1 perspective at least, one of the things you may
2 have noticed over the course of today's
3 discussion, the "Three Amigos" here on my left are
4 extremely well prepared, they're very thorough,
5 they're very cautious, they're very deliberate,
6 they're detail freaks, they're not prone to
7 exaggerated statements and so on. They're not
8 performing today. This is what they're like in
9 real life so to speak. I will finish.

10 This are exemplary -- or examples, rather --
11 sorry, you can't refer to a person as an example,
12 but this exemplifies the nature of the advice
13 that's given to the management program overall,
14 and so from my perspective at least, the framework
15 we had in place that relies on the advice of
16 gentlemen like these, is a very solid one.

17 Does it reduce the risk to zero? No. But it
18 substantially reduces it.

19 Q Maybe I'll just add to that before I go to the
20 rest of them. If those that are wearing the risk
21 -- and in this case the First Nations who rely on
22 the Fraser River sockeye, and if there is an
23 impact and they lose their fish, if they are not
24 part of the package, if they are not the
25 scientists, then you appreciate that it's
26 difficult for them to accept the outcomes, and to
27 accept that somebody else is assessing the risk.
28 Do you agree with me on that?

29 MR. SWERDFAGER: I agree that whoever wears the risk -
30 and it's not just First Nations, and I don't think
31 that's necessarily what you were saying - but
32 certainly anyone who bears the risk to some degree
33 needs to be part of the discussion and dialogue on
34 how we proceed with it.

35 Q And that's how we're going to build trust.

36 MR. SWERDFAGER: I believe that's correct.

37 Q And that's how we're going to build better
38 understandings of the true impacts, and better
39 understandings of how those impacts should be
40 balance; is that correct?

41 MR. SWERDFAGER: I think that's a fair statement.

42 Q Does anybody in this panel disagree with that?
43 Could you all say "No"?

44 DR. McKENZIE: No.

45 DR. SHEPPARD: No, I don't disagree.

46 DR. MARTY: I think I'll just say I'm not an expert on
47 risk assessment, so I didn't follow the entire

1 conversation. I'll just -- yes.
2 MS. GAERTNER: All right. I'd like to just finish with
3 one final question on recommendations, if I may,
4 Mr. Commissioner, and I'd like to go to Exhibit
5 1540, which is Technical Report 5D, which was
6 provided by Dr. Dill. At page 36, he's offering
7 some management options for reducing risks. I'll
8 appreciate that he goes from management options
9 within the farms all the way to the option of
10 closed containment, and I won't take you that far.
11 I'm sure that would be difficult for some of you.
12 But I want to go to recommendation 2 and 3.
13 Particularly, I'd like to hear from you, Dr
14 McKenzie, and then if we have time, Dr. Sheppard.
15 Would you agree that recommendations 2 and 3 would
16 be useful ways of managing the risks of the
17 interactions between farm fish and wild fish and
18 the transference of pathogens and disease between
19 them?
20 DR. MCKENZIE: Sorry, I'm just reading it again.
21 Q Yeah, please do.
22 DR. MCKENZIE: With respect to issue 2, there's a lot
23 of research that has been done on the health of
24 fish and what are optimum densities that are run
25 for fish, both for health perspective, but it is
26 also welfare. They are schooling animals so we do
27 have to consider densities that way.
28 I don't believe that -- I believe the
29 operating density that currently exist fit well
30 within those research perspectives on what is
31 optimal health and welfare. So I don't believe
32 there is a great need to reduce densities.
33 Q Dr. Sheppard?
34 DR. SHEPPARD: Yeah, I wouldn't say I'm in agreement
35 with either of those statements in the sense that,
36 as a point in fact, the number of farm fish on the
37 coastline in the last ten years - and the density
38 of those animals - has increased as the B.C.
39 salmon farming industry has grown from within.
40 Yet we see a decline in mortality rate due to
41 infectious diseases.
42 So his characterization of risk to wild fish
43 seems a bit broad.
44 Q You were saying "decline in mortality", you're
45 talking about the farm fish at that point in time?
46 DR. SHEPPARD: That's true.
47 Q And so we don't really know about the increased

1 mortality rate in the wild stocks in that
2 circumstance?

3 DR. SHEPPARD: No, I take it to be that's the question
4 before this Commission.

5 Q Yeah, but I was asking you whether or not if we
6 were trying to minimize the interactions between
7 the wild fish and the farm fish, and trying to
8 minimize the risks associated with them, whether
9 those two steps, 2 and 3, might be good ways of
10 starting.

11 DR. SHEPPARD: Well, again, density being one stressor
12 of many. Fundamentally, yes, this is some
13 fundamental principles worthwhile.

14 MS. GAERTNER: Thank you. Those are my questions, Mr.
15 Commissioner.

16 MR. MARTLAND: Thank you. Mr. Kelliher for the
17 Aboriginal Aquaculture Association has in fact
18 contributed time to the Commission. I think it's
19 a first that we've actually receive such a
20 donation. We're grateful for it. I don't propose
21 to use it.

22 What I'd like to do is ask counsel for the
23 Musgamagw Tsawataineuk Tribal Council to use her
24 five-minute allocation next, please.

25 MS. ROBERTSON: Thank you, Mr. Commissioner. Krista
26 Robertson for the Musgamagw Tsawataineuk Tribal
27 Council. I have just two brief questions.

28 Mr. Lunn, if you could bring up Tab 8 of
29 Canada's list of documents, please.
30

31 CROSS-EXAMINATION BY MS. ROBERTSON:
32

33 Q Dr. Sheppard, this is a question for you. Can you
34 identify that document?

35 DR. SHEPPARD: Yes. It is the document drafted by my
36 predecessor with the province. It was in 2006 and
37 it forms a guide for the salmon-farming
38 organization to write their own health management
39 plan specific to their business.

40 Q So basically this dictates what the content of the
41 plan would be?

42 DR. SHEPPARD: Yes, as a guideline. It's not a
43 prescriptive plan. It's an overall general
44 guidelines.

45 MS. ROBERTSON: All right. May we mark that as the
46 next exhibit, please?

47 THE REGISTRAR: It's already been marked. It's 1664.

- 1 MS. ROBERTSON: And if we could go to page 23 of that
2 document. Now, looking at 2.8.2, please, if you
3 could highlight that, Mr. Lunn.
- 4 Q So this, Dr. Sheppard, this sets out the steps
5 required if there's an infectious disease
6 emergency. I've looked at the list of steps. It
7 goes over on to the next page. What I don't see
8 there is a requirement to notify First Nations in
9 the area if there's been a disease outbreak on the
10 farm. Is that correct? Am I correct that that's
11 not a requirement? It's not an element of the
12 templates there?
- 13 DR. SHEPPARD: That's true. I don't see it there
14 either, but again, it's not a prescriptive plan.
15 The overall feeling is you communicate with your
16 neighbours of who may be interested in this
17 situation, so there's open communication of the
18 situation at the farm.
- 19 Q Dr. -- are you doing that, Dr. McKenzie?
- 20 DR. MCKENZIE: Yeah, I was just going to add that this
21 is a technical document, so the technical steps we
22 take to mitigate disease.
23 On top of this is how you communicate, your
24 communications strategies, which companies have
25 and the industry has as a whole. But
26 communication strategies on a number of issues,
27 including this one, are not included in this
28 technical documents.
- 29 Q So your company -- are you aware -- is your
30 company -- do you have a procedure or a protocol
31 that you notify the local First Nations in --
- 32 DR. MCKENZIE: We, and even the industry has agreed on
33 a viral outbreak management plan that has a
34 communications portion in it, and First Nations is
35 listed on that.
- 36 Q It's listed on that.
- 37 DR. MCKENZIE: Yes.
- 38 Q So you can confirm you are doing that?
- 39 DR. MCKENZIE: We haven't had an outbreak that we
40 needed to publicly -- since the creation of that
41 document, there hasn't been an emergency outbreak
42 which is what this section refers to.
- 43 Q Dr. Sheppard, I mean, you're the regulator here.
44 I mean, would you agree with me -- I mean, I don't
45 think you could disagree that the wild salmon
46 stocks are of just profound importance to the
47 coast First Nations in terms of their sustenance

- 1 and their culture. Do you agree with that?
2 DR. SHEPPARD: Yes, as they are to the rest of the
3 Canadian public.
4 Q But they do have a special right, a constitutional
5 right.
6 DR. SHEPPARD: Yeah, I agree with you, yes.
7 Q So don't you think that DFO should regulate, then,
8 having a right to know when there's an outbreak in
9 a farm in their territory? Should that be a
10 requirement?
11 DR. SHEPPARD: The questions you're asking of me are
12 policy decisions above my level. My job is to
13 record, report, collect. And we certainly put
14 that information out onto the websites posted very
15 regularly. It's available and, as I said,
16 somewhere else within this document is to suggest
17 communication with the persons of interest in the
18 area.
19 MS ROBERTSON: All right. I'll leave it at that. Just
20 one other question, then, Mr. Lunn, Tab 11 of the
21 Commission's documents.
22 Q Mr. Swerdfager - pardon me, I always struggle with
23 your name - this document has already been put to
24 the panel by Mr. Leadem, and I just want to have
25 some clarification around your comments there.
26 As I understand it, then, this is a draft
27 document wherein DFO was contemplating the
28 development of regulations for fish pathogens and
29 pest treatment regulations under s. 36 of the
30 **Fisheries Act**; is that correct?
31 MR. SWERDFAGER: It is a draft document. It is
32 something that we were considering for development
33 under s. 36 and 32 of the **Fisheries Act**. It is
34 the template of what a regulation eventually would
35 look like, but there is no draft regulation at
36 all.
37 Q And, as I understand it, s. 36 is the section of
38 **Fisheries Act** that prohibits the deposit of
39 deleterious substances into the ocean. And this
40 regulation is contemplated on the basis that the
41 use -- introduction of pesticides into the
42 environment is a -- is in fact an introduction of
43 such a substance and may be a violation of s. 36
44 of the **Act**?
45 MR. SWERDFAGER: Essentially, the motivation of this
46 initiative to begin some kind of regulatory
47 attention to this issue stems from the fact that

1 under the **Pest Products Control Act**, which is
2 administered by Health Canada, someone can see
3 approval to use a pesticide, and this has happened
4 in real time, so to speak, in New Brunswick,
5 specifically with a chemical known as -- a
6 pesticide known as AlfaMax --

7 Q And is this where you would bathe the fish --
8 MR. SWERDFAGER: Yeah, yeah, it's a topical treatment
9 as opposed to an in-feed, hence the difference
10 between pesticide and drug.

11 So this is used -- there are a number of
12 others -- and it's used elsewhere in the world,
13 and so on, but the Pesticide Management Regulatory
14 Agency has granted approval, or had, rather, a few
15 years ago, granted approval for the use of that.
16 But it became apparent that we had a bit of a
17 left-hand and right-hand problem in the federal
18 government. You could get an approval to use it
19 via Health Canada, but s. 36, as administered by
20 Environment Canada, potentially would block that,
21 and so we had a perverse outcome.

22 So the regulation here would be designed, in
23 essence, to say we want to remove the conflict
24 between these two pieces of legislation.

25 Q So that's in process then. DFO is undecided on
26 that. We have to --

27 MR. SWERDFAGER: DFO is experiencing quite a bit of
28 difficulty in terms of figuring out an appropriate
29 legal structure for dealing with this issue, and
30 we have found that as we peel away the layers of
31 the onion, it becomes more and more complicated.
32 Not so much from a policy perspective, but from a
33 legal structure and drafting perspective.

34 **Fisheries Act** occasionally, for the purposes of
35 activity such as this one, is very difficult to
36 work with.

37 MS. ROBERTSON: All right, then. That's my time,
38 thanks.

39 MR. MARTLAND: Thank you. Mr. Commissioner, just to
40 state it on the record, this is Exhibit 1688. Mr.
41 Lunn had passed a note with respect to First
42 Nations Coalition. What's now Exhibit 1703, I
43 take it there may be a question mark over what the
44 exhibit number affiliates with. I wonder if
45 that's been clarified or if that's --

46 MR. LUNN: It has now been clarified.

47 MR. MARTLAND: It has been clarified, thank you. Mr.

1 Commissioner, as Commission counsel, we don't have
2 re-examination. Canada and the Salmon Farmers
3 don't. Ms. Callan, I believe, was seeking to ask
4 one question in re-examination.

5 MR. COMMISSIONER: I would like to adjourn. If there's
6 just one question, I'll accept it.

7 MR. MARTLAND: Thank you, Mr. Commissioner.

8 MS. CALLAN: Tara Callan for Her Majesty the Queen in
9 Right of the Province of British Columbia.

10

11 CROSS-EXAMINATION BY MS. CALLAN, continuing:
12

13

14 Q This is a question for the veterinarians. Mr.
15 McDade had asked a number of questions about ISH
16 lesions and marine anaemia. Would you agree with
17 the proposition that ISH lesions does not equate
18 with a diagnosis of marine anaemia?

19 DR. SHEPPARD: I agree.

20 MS. CALLAN: Those are my questions.

21 MR. MARTLAND: Mr. Commissioner, I believe that
22 concludes the evidence from this panel. Thank you
23 to you and to all counsel for working within these
24 constraints of today.

25 THE COMMISSIONER: Thank you very much, Mr. Martland.
26 Yes, thank you, Mr. Swerdfager and Dr. Sheppard,
27 Dr. McKenzie, Dr. Marty. Thank you for your
28 attendance, and you, sir, for being here an extra
29 day. Thank you very much.

30 We'll now adjourn until 10:00 a.m. tomorrow
31 morning. Thank you.

32

33 (PROCEEDINGS ADJOURNED AT 4:01 P.M. TO
34 SEPTEMBER 1, 2011 AT 10:00 A.M.)
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1 I HEREBY CERTIFY the foregoing to be a true
2 and accurate transcript of the evidence
3 recorded on a sound recording apparatus,
4 transcribed to the best of my skill and
5 ability, and in accordance with applicable
6 standards.

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11 Irene Lim

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13 I HEREBY CERTIFY the foregoing to be a true
14 and accurate transcript of the evidence
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17 ability, and in accordance with applicable
18 standards.

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22 Karen Hefferland

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34 Pat Neumann

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46 Diane Rochfort
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